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ABSTRACT

This report presents a conceptual framework for the mission of the National Institute of Education (NIE) Research and Development Center for Teacher Quality and Effectiveness. Several important issues that should be the focus of the Center are identified, and the theoretical foundations to guide the research and development activities to study these issues are discussed. Also outlined is the role that the Center should have in assuming national leadership in the study of teacher quality and effectiveness, and the importance of developing new knowledge and perspectives that can inform the development and implementation of policy and can be taken and used by practitioners to improve their life, work, and productivity as teachers. The developers of this conceptual framework examined a broad range of popular, professional, and scholarly publications; consulted widely with policymakers and pracitioners; and undertook a survey of representatives of various education interest groups. The central issues that the Center should be engaged in are listed and discussed, including: (1) to attract and retain teachers; (2) to continuously enhance the competence of teachers who are recruited and who are currently in the profession in ways that increase their effectiveness; (3) to establish conditions in the workplace that facilitate the effective use of that competence; and (4) to motivate teachers to do their best and improve their practice. (CB)

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A CONCEPTUAL FRAMEWORK FOR THE MISSION OF THE NIE RESEARCH AND DEVELOPMENT CENTER FOR TEACHER QUALITY AND EFFECTIVENESS: FINAL REPORT

Planning Grant for the Development of an Institutional Grant Proposal to Establish an NIE Research and Developmental Center for Teacher Quality and Effectiveness

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A CONCEPTUAL FRAMEWORK FOR THE MISSION OF THE NIE RESEARCH AND DEVELOPMENT CENTER FOR TEACHER QUALITY AND EFFECTIVENESS

FINAL REPORT*

Introduction

The purpose of this report is to present a conceptual framework for the mission of the NIE Research and Development Center for Teacher Quality and Effectiveness (CTQ&E). This report is submitted to NIE pursuant to the stipulations contained in the Grant Announcement No. PA-84-3, Planning Grants and Institutional Grants for Educational Research and Development Centers.

In this report, we identify a number of important issues that we believe should be the focus of the CTQ&E and discuss the theoretical foundations to guide research and development activities to study these issues. In addition, we spell out the role that this Center should play in assuming national leadership in the study of teacher quality and effectiveness and the importance of developing new knowledge and perspectives that can inform the development and implementation of policy and be taken and used by practitioners--teachers and school and district administrators--to improve the life, work, and productivity of teachers.

In developing our conceptualization of the mission of and research agenda for the CTQ&E, we examined a broad range of popular, professional, and scholarly publications, consulted widely with policymakers and practitioners, and undertook a survey of representatives of various education interest groups (see Evertson & Smylie, Summary of Planning Activities: Final Report, September 1985 for summaries of survey findings). In our minds, there is considerable covergence with respect to the central issues that should be engaged by a national research and development center concerned with teacher quality and effectiveness. Those priorities, simply put, are (1) to attract and retain able teachers, (2) continuously enhance the competence of teachers who are recruited and who are currently in the profession in ways that increase their effectiveness, (3) establish conditions in the workplace that facilitate the effective use of that competence, and (4) motivate teachers to do their best and improve their practice. While each of these issues is discussed separately, we maintain that they are inextricably related in several important ways. We examine these relationships throughout the body of this report.

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Now Is the Time

Unlike previous school reform movements, a central concern of the current school improvement effort is the quality of teaching. Much of this concern is intuitive and some of it derives from a growing body of evidence that variations in teacher effectiveness account for significant variations in student learning (Hawley & Rosenholtz 1984). This new level of awareness that the skills and knowledge of our citizens and workers are heavily determined by teachers comes together with a sense that the quality of education children receive has slipped and that we are in jeopardy of failing to effectively compete economically, politically and militarily with some other industrialized nations.

Efforts to enhance the quality and effectiveness of teachers are especially important now for several reasons. Teacher effectiveness is an increasingly important source of the contributions the educational system makes to the economic welfare of individuals and of the nation as a whole. About one fifth of the post-World War II growth in our economy per capita has been due to the increasing school attainment of the population (Saks 1984). The opportunities for dramatic increases in productivity (or in those many non-economic benefits of schooling) from further increases in the average school attainment of the population are becoming increasingly limited, and further improvements in our economy and society from the education sector will mainly have to come from improvements in the quality of what goes on during the years children spend in school. It is also timely that we consider ways to enhance teacher quality and effectiveness now because the society is beginning to increase its funding for schools and it is easier to program than to reprogram funds. Moreover, as much as 50 percent of the teaching workforce will be hired over the next decade and this provides a special opportunity to improve the teacher corps.

All of this means that this is a particularly opportune time for research and development related to the improvement of teacher quality and effectiveness. We have a "window of opportunity" to bring about significant improvements in our schools. It seems likely, however, that the energy available for education reform will dissipate or shift to another priority in the not too distant future. So, now is the time to focus research on the prospects for significant change.

Goals for a National Research and Development Center on Teacher Quality and Effectiveness

The primary goal of the CTQ&E is to develop knowledge and identify strategies that will enhance the qualities, competencies, and effort of teachers that appear to be related to the facilitation of student learning (i.e., teacher effectiveness). To do this, the Center should focus on how formal policies, structures and practices aimed at school improvement interact with the perspectives of teachers and potential teachers in different circumstances to produce outcomes related to teacher effectiveness.

To understand the impact of purposive changes in policies and practices on teacher effectiveness, we will need to learn about what teachers want from their work and how they make sense of their professional lives. But knowing

about teachers' hopes and dreams and about their view of their work outside the context of the change process may be misleading. Most teachers, like most people, adapt to new threats, promises, and opportunities in ways even they could not predict.

In other words, it is difficult to predict how people will respond to conditions they have not experienced. Moreover, the current school reform effort is multidimensional and the combination of influences involved may render past research less relevant than it would be if change efforts were focused on one or two central issues (like curriculum, for example). All of this means that there is a pressing need for sophisticated research which is conscious in its design and methods of the varieties of simultaneous changes many teachers and teacher candidates are experiencing and can expect to experience. The potential of such research to make lasting contributions to theory and practice is correspondingly great.

Major Emphases of the Research and Development Program

The bottom line of efforts to improve teacher quality and effectiveness is to enhance student learning. We consider teaching that produces student learning as effective. Teaching effectiveness is determined by many things but appears fundamentally to be the product of the (a) the qualities or capabilities of teachers that are not defined by teaching itself (e.g. intelligence, sensitivity, etc.), (b) the accessible technology (e.g. the curriculum, available instructional strategies, etc.), (c) the conditions of work teachers experience, (d) the rewards of teaching, and (e) the readiness of students learn. Many factors, in turn, influence each of these pieces of teacher effectiveness.

Clearly, a single R&D center cannot address all of the issues embodied in even the main causal chain just described. Thus, we will need to be reasonably clear about the boundaries of the enterprise at the same time that collaboration is eagerly sought and shifting responsibility is tolerated. Moreover, main lines of research and development can be complemented by monitoring activities, exploratory research, and surveys of current research and practice.

In a later part of this report, we will elaborate on the place of the Center vis-a-vis the constellation of factors that influence student learning and on the central issues that this Center should be prepared to address. For now it may be sufficient to identify three main lines of inquiry:

1. How do different educational policies and practices affect the quantity and qualities of teachers who choose to enter and stay in the profession?

2. Under what conditions are different ways of enhancing teacher competence and facilitating the use of that competence effective?

3. How do evaluation and certain types of incentives <u>focused</u> on teachers already in the profession affect effort and the attractiveness of the profession?

A CTQ&E should be at the heart of the school reform movement. The Center's focus on teachers is an appropriate response to the growing evidence of the dependence of school improvement efforts on the abilities, energies and dispositions of teachers (cf. Hawley & Rosenholtz 1984). The policies and practices focused on recruitment and retention, evaluation and career incentives, to those dealing with enhancing competence and facilitating its use are among the most widely debated, and in many cases, the most costly, on the public agenda. These three sets of policies are closely interdependent.

The Relationship Between Knowledge and Action

A national R&D Center should offer a portfolio of interrelated research projects and activities that will develop new knowledge, inform policy and improve practices, and enhance the quality of systematic inquiry being done by researchers not directly associated with the Center and by practitioners. The Center should be established as a national resource that simultaneously draws upon and fuels scholars, policymakers and practitioners throughout the country.

The development of new knowledge and theory and the provision of policy-relevant analysis and information are complimentary activities. Research and development that seeks to inform policy and practice needs to recognize that knowledge about outcomes is insufficient to promote the adoption of educational reform measures. A yet unpublished study of the information needs of state policymakers concludes: "In order to address the needs of state policy makers, NIE should support research which focuses on the implementation of new policies, on their costs, and on their impact on students . . ." (Cohen 1985, emphases added).

The Issue of National Research Leadership

The rationale for providing federal support for research and development centers goes beyond either the desire to focus research priorities or the importance of sustained programs of research that involve a number of scholars from different backgrounds. A national center needs to be justified by its ability and commitment to deal creatively with substantive concerns of national importance and to reach researchers and practitioners throughout the country and beyond.

First, a national R&D center for teacher quality and effectiveness must attract scholars of national stature from throughout the nation.

Second, the center must be able to engage the interests and energies of policy makers and educators interested in teacher quality and effectiveness. Linkages with policy makers and practitioners should go beyond the provision of information. The Center should solicit information from those involved in making and implementing policy and such information should give direction to its research agenda. In short, the Center should be able, by the force of the knowledge it develops, to command the respect of the many types of actors in the process of educational improvement whose attention is being sought by many other providers of information and ideas.

Third, the CTQ&E should collaborate with other research centers. The interpersonal relationships and shared professional commitments that exist among Center researchers and other leading scholars are an important resource in establishing and maintaining such cooperation.

Fourth, research issues and research sites should be national. Research and development projects and activities should contemplate many of the issues confronting policy makers and practitioners throughout the country. The Center's projects should examine national data bases and conduct research on site in several states and in all regions of the country. Insisting on national scope for the Center's inquiries stretches thin the limited NIE funds available. Such breadth is crucial, however, not only because of the credibility it brings research findings but because regional differences in political cultures, educational strategies, and fiscal resources affect the efficacy of different policies and practices.

Fifth, to claim the status of national R&D leadership, the CTQ&E should contribute to the capabilities of other researchers and practitioners to engage in systematic inquiry and to utilize research effectively. The Center should also work with state and federal agencies and with the Congress to enhance the contributions research can make to educational improvement. For example, the CTQ&E should work closely with NCES in its efforts to develop and make available more robust and accurate data related to teacher quality and effectiveness (cf. NCES 1985).

Sixth, the CTQ&E should have the capabilities and experience to provide technical assistance to state and local education agencies seeking to implement policies and programs that derive from the Center's activities.

Seventh, the CTQ&E must be able to attract other financial resources to support the mission of the Center. The funding available from NIE to finance the work of the Center falls short of the resources needed to meet fully NIE's ambitions. Thus, the CTQ&E will have to have the capability and the stature to attract funds from other federal sources, state and local agencies, foundations, and corporations.

In summary, the CTQ&E must be a place where important research goes on, but the work of such a center must be far more than just a portfolio of research projects. It must also provide the capabilities to explain the outcomes of those projects to different constituency groups and turn those results into ideas and products that can be used to improve student learning. The Center should also be a place where people who are working on similar problems in different areas--researchers and practitioners and policy makers--come together in ways that produce new kinds of questions to be asked and enrich the research techniques of the various subparts of the Center. Such leadereship is a primary justification not only for the CTQ&E but for federal support of any national research and development program.

Defining the Scope of the Center for Teacher Quality Effectiveness

The CTQ&E should see itself, as should the other NIE centers, as an integral part of a national research and development effort to identify or

invent and to implement cost-effective improvements in the institutions and resources that foster student learning.

The central problem with bringing about change in systems of social action is that everything is related to everything else. In the case of schools, for example, which are among the most open of the organizations through which society seeks to pursue its goals, the gains in student learning that might be made by enhancing teachers' instructional competence can be diminished at several points reaching from students themselves and fellow teachers to the halls of the Congress. Since resources and the human mind are limited, the CTQ&E must understand its place in the constellation of issues that need to be addressed in order to achieve educational improvement. At the same time, it needs to be flexible about boundary changes and to aggressively pursue opportunities for collaboration with other NIE centers, NIE laboratories, other research and development organizations, and policymakers and practitioners.

When You Wish Upon a Star, You Have to Know Where It is in the Constellation

The predominant goal of school reform is to improve student learning. Put another way, the effectiveness of various reforms can best be judged by their relative ability to facilitate the production of student learning. (In the term "student learning" we can encompass different learning objectives from the acquisition of social values to the development of a capacity to understand differential equations.)

There are many factors that influence what children learn as a result of their experience in school. We can begin to sort these out if we use the idea that schools are in the business of producing learning and, like many other work organizations, their productivity is the result of the quality of the technology they have available, the raw materials they have to work with, the quality of the craftsmanship, and the conditions under which the work (the application of technology to the raw materials) is performed. Of course, several things external to the school influence each of these sets of variables (for an elaboration of this conceptualization and references to the research base that supports it, see Hawley 1985a).

The strength of organizational technologies can be defined by the certainty of the relationship between means and ends. Organizations with relatively weak technologies that cannot control the characteristics of the raw materials they work with depend heavily for their productivity on the quality of their personnel (cf. Thompson 1967). Schools are just such organizations and while we know much more about how to effect student learning than we ever have, the variability among students in particular schools and classrooms, and the expectations of society for what students are to learn, has never been greater.

It follows from this that the success of efforts to improve schools depends fundamentally on the success of strategies to improve the effectiveness of teachers. Thus, the work of a CTQ&E is at the heart (and perhaps the soul) of the school reform movement.

Not so long ago, books could be published asking "Do Teachers Make a Difference?" In the last dozen years or so that question has been put to rest and replaced with inquiries like, how much difference do teachers make when they do behavior X and under what circumstances does the effect of that behavior or practice vary?

The various ways teachers shape the prospects for students' learning are increasingly well recognized--at least by researchers and educators. Parents seem always to have known of the importance of teachers. Drawing on the findings of hundreds of studies, Hawley and Rosenholtz (1984: 6-7) highlight the centrality of teachers to efforts to improve schools:

> Because teaching is the core technology of formal education, the most effective way to improve the achievement of a given student is to improve the quality of teaching that the student experiences. Not only does the research on student achievement increasingly document the influence of the things teachers do on student achievement, there is an enormous amount of evidence that teachers have a significant impact on efforts to change schools and on the nature of the students' experience, whatever the formal policies and curricula of a school or classroom might be.
>
> Teachers modify curricula, intentionally or not. They keep the gates through which students must pass to gain access to the learning resources available. Teachers allocate and manage students' time, set and communicate standards and expectations for student performance, and in a multitude of other ways, enhance or impede what students learn.

Schools come to be when one or more individuals are recruited to the role of teacher and provided a place to carry out instruction. Teachers bring with them a "readiness to teach" that is comprised of certain values, qualities, knowledge and competence, and energy. Teachers use these predispositions and resources to apply the technologies (i.e., curriculum, learning materials, instructional strategies, etc.) they have available to produce student learning. Their ability and willingness to use the technologies available are shaped by the conditions under which teachers must work. These conditions include the ethos or culture of the school, the degree of student heterogeneity, the relationships that exist among teachers and among teachers and principals, and the time available to teach.

The product of the interaction between teacher characteristics and capabilities, the available technology, and school conditions is what students experience as teaching. As teachers bring with them to school different levels of readiness, so different students come to school each day with different levels of readiness (capabilites plus motivation) to learn. The resulting interaction between teaching and student readiness to learn produces student learning. This series of interactions comes full circle in that what students learn, at least what teachers believe students learn, significantly influences teachers' readiness to teach.

In practice, these interactions are not so linear. Everything in this chain of events is related to everything else in some measure so that changes in one set of influences can alter both the other sets of influences and the influences within its own set. Moreover, schools are open to their

environments so that events and circumstances external to the school--policies, values and social conditions--constantly intrude upon the teaching-learning process in ways schools find difficult to control. Indeed, there are important normative constraints on the extent to which it is seen as appropriate that schools should seek to "manage their environments."

The CTQ&E should be concerned with explaining the sources of teacher capabilities and competence that reseach or expert and practitioner consensus suggest are related to student learning and with discovering how various formal and informal policies relating to incentives, career structures and working conditions affect the level of effort teachers expend in the development and use of their competencies. While some studies might directly explore the link between teacher behavior and student learning, this should be done only where we can control or readily learn about other factors that would influence student achievement. In other words, to do the large scale studies that should be done to be responsive to contemporary needs to develop policies to improve teaching, we should leave to other Centers the bulk of the job of specifically linking teacher behavior to student learning. This seems to be what NIE has in mind when it says in the GAA, "The Center will not focus particularly on questions of instructional technique: this falls within the mission of other Centers."

This does not mean that the CTQ&E should not study teacher behavior. Indeed, a central focus of the CTQ&E should be to explain how policies that seek to change teacher behavior are mediated by the way those policies are implemented, the conditions under which policies are implemented, and teachers' perspectives relating to the policies and to their work.

While the CTQ&E should try to contain the scope of its responsibility, it should not want to draw boundaries too precisely or narrowly. The prospects of a genuinely national research and development system built on collaborative work among scholars and practitioners are very exciting. The fit of our efforts to those of other centers and to the labs, for example, should shape the boundaries of responsibilities and, at the same time, these boundaries should remain permeable.

Some Definitions

Before we begin our discussion of the organizing concepts for the CTQ&E, we first should offer some definitions of key terms. These definitions are presented as interpretations that will help clarify our perspectives and arguments.

Teacher quality and effectiveness. When contemporary policymakers and pundits talk about teacher quality they are usually talking about academic ability or intelligence. Thus, the references to concern over quality usually cite low scores on standardized tests, low rank in high school class or the relative rigor of education courses. We think that teacher intelligence and academic record are important aspects of teacher quality but they do not cover enough ground. When teachers are recruited they have a range of capabilities that might affect their effectiveness. Presumably these capabilities are the qualities they bring to teaching. These qualities may be thought of as capabilities that change over time and their relevance

to student learning may be situational and role-related. For analytical purposes, we try to keep these capabilities distinct from competencies or from the instructional strategies teachers use.

Thus, when we use the word quality we mean qualities that may be thought of as resources that may contribute to teacher effectiveness. How these qualities or capabilities--we use the two terms interchangeably--are related to teacher effectiveness is, however, not a question that is easily answered since one cannot know what qualities result in quality without linking these to student learning. What we can do is attend to what little is known about such linkages and identify the distribution of teacher qualities--intelligence, enthusiasm, commitment, empathy, flexibility, creativity, etc.--the manifestation of which appear to be the product of various incentives and conditions that promote or discourage individuals' choices to enter or to leave teaching or to undertake other action. As we suggest below, how teacher quality is defined is an issue of considerable importance and deserves the coordinated effort of several Centers.

Teacher effectiveness. As might be inferred from the preceding paragraphs, when we use the term teacher effectiveness we are referring to the contribution teachers make to student learning. Effectiveness and teacher behavior (performance) are different phenomena. Teachers may practice similar behaviors but their students, for reasons beyond the teacher's control, may learn at different rates. It follows, somewhat paradoxically perhaps, that teachers may employ effective teaching methods and not be effective, at least not as effective as someone else who works with students who are more ready to learn or who teaches in conditions more suitable to teaching effectiveness. In short, "teacher effectiveness" seems usefully tied to student performance. The term "effective practices" is used here, as the term is used in much of the literature, to refer to practices that have been found to be effective generally. Of course, teacher effectiveness is undoubtedly related to the ability of teachers to adapt effective practices to the conditions and students they engage, and the combination of qualities and competencies that result in this kind of adaptive behavior should be a concern of the Center.

Competencies. We define competencies as skills that are specifically related to teaching. Such competencies are knowledge of subject matter, clarity of communication, expertise in the use of particular teaching methods, etc.

Effort. How hard people try is the measure of the effort they exhibit. Effort is not readily measured but the Center might be interested in things like the amount of time people invest in grading papers, meeting with students, developing their skills and the like.

Organizing Concepts: Decision Making and Motivation Theory

The quality and effectiveness of teachers result from individual and institutional decisions about entry to and retention within the profession and the development and use of professional competence. Theoretically, choices may depend on an evaluation of the benefits and costs by various institutions

and actors, including potential teachers, teachers, other teachers, schools and school systems, and various governmental units.

Seen in these terms, effective strategies for enhancing the productivity of the teaching corps center around motivating people of ability to make choices that would result in a desirable distribution of student learning. This simple formulation of the problem provides a framework within which a number of complex issues can be fruitfully studied. Thinking of teacher quality and effectiveness as the product of individual and institutional decision making takes one on a search for the determinants of teacher behavior that would allow one to predict the consequences of the interaction between teacher perception, skills, and motives on the one hand, and incentives and conditions facilitating or impeding action on the other.

The search for an understanding of these determinants is manifest in much of the research in the broad field commonly called organizational behavior. Perhaps the most widely accepted general theory of human motivation in workplaces is the so-called Vroom-Atkinson Theory and it rather nicely encapsulates the major issues to which we think the CTQ&E should direct its efforts (Vroom 1964; Atkinson 1958). This theory postulates that motivation is a function of the salience of the needs of individuals, the perceived relevance of available incentives to those needs, and the probabilities the individual attaches to the likelihood that the incentives they feel are worth pursuing can be obtained. This is also the way micro-economists have conceptualized the problem (Brown & Saks 1980). Note that this formulation makes the efficacy of institutional policies and practices contingent on the "perspectives" of those whose behavior the institution or leader seeks to influence. Of course, the perspectives of individuals are not independent of the institutional contexts in which they find themselves. In this reality lies the importance of organizational values and cultures and the relationships between this collective manifestation and teacher perspectives.

Thus, efforts to enhance the quality and effectiveness of teachers must alter elements of one or more of three sets of variables: (a) the teachers' or potential teachers' perceived needs or goals, (b) the nature of incentives relevant to teachers' needs and goals, and (c) the real or perceived capacity of teachers to attain the incentives involved (which, in turn may relate to the conditions under which teaching occurs). Changing one of these types of variables may change the importance of others in determining teacher behavior. For example, changes in individual capacity may lead to changes in perceived needs (Argyris 1964). Since most service delivery organizations, and particularly schools, are open systems (Katz & Kahn 1978), the effects of each of these strategies to induce decisions that will improve the quality or effectiveness of teachers are also affected by considerations external to the school and the school system.

The ways we conceptualize strategies for examining the impact of efforts to increase the quality and effectiveness of teachers stress the importance of understanding the values and predispositions of the individuals involved, as well as a number of important organizational conditions that affect the definition and implementation of policies and practices. A potentially productive approach for the Center would be to meld the perspectives on decisionmaking employed by economists and political scientists looking at the dynamics of institutional and teacher choice with the theories and methods of

psychologists and scoiologists and others who are very knowledgeable about the way schools operate to promote or impede teaching and learning. Practitioner advice to identify and frame key questions and practitioner networks, as well as scholarly outlets, to both "test" and disseminate findings should be crucial components of the research agenda.

Fundamentally, then, we would want to know how certain key choices individuals make during their career can be influenced so as to enhance the contributions teachers make to student learning. These key choices are:

1. whether to become a teacher

2. whether to try to increase one's competence

3. how hard to work and how to allocate one's time

4. whether to stay in the profession.

These individual decisions seem to be influenced, as we will see in later reviews of the literature, by two sets of variables that are the product of institutional choices to: (a) create conditions and incentives that motivate behavior, and (b) enhance opportunities or conditions that facilitate the application of teachers' energy and competence. The effects of these variables, which include those policies and practices described as "policy areas" by NIE in its description of the Center's mission, are likely to vary depending on the goals and needs teachers have, such as those identified by NIE as "teachers' perspectives." We note that we think it is important to add to NIE's list of key variables concern for how policy and practice relating to school and classroom management influences teacher motivation, effectiveness and job persistence, a point we make in more detail below.

Organizing the Research of the Center: Research and Development Program Areas

Our view of how the Center can be organized most productively follows from the ways we have conceptualized the central problems that the Center should seek to solve. We want to know how the four key career decisions outlined above are influenced. The work of the Center can be organized into three broad interrelated programs within which a number of different research projects and activities could be carried out. Some projects would straddle two or three programs. The first program area would focus on teaching as a career with an emphasis on strategies and costs of the recruiting, attracting and selecting teachers of <u>appropriate quality</u>. This emphasis on "appropriate quality" seeks to encourage an awareness that the wage and incentive structures of an industry do not seek the "best and the brightest" for every role and that the overall talent pool upon which the economy draws would ideally be distributed in relation to the best fit between the available talent (quality) and aggregated social values. This does not mean, of course, that the goals of the society need be only economic ones.

Indeed, the goals of particular labor markets may differ. The point is that in changing the qualities and effectiveness of teachers we need to be conscious of the cost effectiveness of particular policy options and the potential impact that the necessary resource allocation will have on the

capacity of individuals and the social units involved to pursue other goals. The CTQ&E should seek to determine what levels of teacher quality can be achieved through various strategies and incentives and to identify the implicit choices being made when we seek to move talent into teaching from other occupations.

The second group of anticipated research and development projects would encompass elected issues relating to the school as a workplace. Other issues include:

1. strategies for increasing teacher competence and classroom management abilities, including feedback, staff development and learning opportunities external to the school system; and the development of working conditions and organizational environments

2. economic, status, and other incentives aimed at influencing teacher career decisions and behavior.

A third program area would deal with the characteristics and effects of career incentive systems and the evaluation processes that are embodied in these systems.

Each of these three areas would allow examination of key proposals on the school improvement agenda in many states and localities. The policy and practice initiatives now being proposed and implemented in states and school districts represent a set of natural experiments. Researchers are being presented with an opportunity of unparalleled proportions to examine the consequences of a set of related but significantly different policy interventions which go to the heart of the educational process--the quality and effectiveness of teachers. Each of these numerous experiments are, of course, beyond the reach of careful study by one Center. However, the CTQ&E should examine some of the most significant of these that represent, theoretically and practically, important types of policies and practices. And, we believe, the Center should play a significant role in encouraging and facilitating the collection and maintenance of data from a range of settings that could be made available to other researchers.

We turn now to an elaboration of the more specific types of issues with which the research of the Center might be concerned.

Teacher Career Paths

The American public has had a curious ambivalence about teachers. A hundred years ago teachers in Nashville were admonished to "lay aside from each pay a good sum of their earnings for their benefit so that they will not become a burden on society" and were told that if they performed their labor faithfully and without fault for five years, they would be given an increase of 25 cents per week in their pay, "providing the Board of Education approves."[1] In 1984, New York public school teachers were offered a starting salary of $14,500 while "Door Stop Maintainers" in the same school system were paid $23,000 to start.

Despite low pay and the fact that teachers seem never to have been drawn from even the top half of their college-going cohort, the myth has been sustained that we treasure our teachers and owe our current success to at least some of them. Recently, however, there has been an outpouring of policies, regulations, and tests to increase teacher competence; demands for the upgrading (or elimination) of teacher education; and plans for rewarding merit that reflect deep concern over the quality of teachers. These policies, along with the dramatic decline in the number of college students who say they want to teach and a corresponding decline in the number of parents (and teachers) who would like their children to become teachers, seem to reflect a shattering of the myth, but not, perhaps, our national ambivalence.

Whether the educational reform movement, which focuses heavily on various strategies for improving teacher qualities and effectiveness, is sustained and bears fruit remains to be seen. But there seems little doubt that the teaching profession, and thus the typical career pattern of teachers, is experiencing unprecedented changes in its formal characteristics.

The CTQ&E will be in the midst of the reform movement and is being presented with the opportunity to investigate the impact of a host of basic changes in the way the work of teachers is formally defined and rewarded.

The public policy implications of the Center's inquiries should be sustantial and the chance to put to a test, and perhaps refine, a number of theories of social behavior, individual motivation, and group and organizational dynamics is exciting. Before turning to an elaboration of the role we see for the CTQ&E in the search for ways to enhance teacher qualities and effectiveness, we want to define a research program on teacher careers. Let us, then, review past research relevant to the broad issues of teacher recruitment and retention. Obviously, as we have suggested in our more abstract conceptualization of the role of the CTQ&E above, investigation of working conditions and the character of career incentives will complement this research program. This program focuses on career paths of teachers from the perspective of labor market analysis. But, as we will show, the type of analyses employed should focus on a richer set of factors--a more textured context of the market, if you will--than have previous efforts.

Review of Related Research

As the theoretical framework we identified earlier suggests, decisions to enter and persist in teaching seem to be influenced by at least three major factors:

1. personal definitions of career needs, success and desired status

2. the availability through work of professional incentives that are thought to satisfy those definitions

3. the feasibility of attaining these professional goals involved at levels of defined success.

In other words, occupational decision-making revolves around a fit between individual needs, the range of options available that are thought to meet

those needs, and how difficult it is to attain the option that best meets those needs (see e.g., Katz & Kahn 1978; Holland 1973)).

The availability of professional alternatives to teaching and the feasibility of attaining those alternatives change with historical circumstance and with the conditions of job and labor markets (e.g., Falk, Falkowski, & Lyson 1981; Robertson, Keith, & Page 1983; Schwarzweller & Lyson 1978; Lyson & Falk 1984). To illustrate, new employment opportunities for women and minorities that have arisen as a result of affirmative action programs over the past decade now compete with teaching for the most academically able of these populations (Schlechty & Vance 1981; Weaver 1981; Darling Hammond 1984) at the entry level and throughout the teaching career. A recent study argues that this is more true for minorities than women (Applied Systems, Inc. 1985) and this conclusion is supported by a comparison of college entrants who professed an interest in teaching in 1972 and 1980 (Plisko 1983).

The quality and quantity of the supply of teachers has been of growing concern to policy makers at all levels of government. The National Center for Educational Statistics (NCES) estimates that the country will need to fill 1,553,000 teaching positions by the year 1992 and that the nation's teacher preparation programs will produce only 1,270,000 graduates over that time (Plisko 1984). On the face of it, this means that there will be an absolute shortage of teachers of sizeable magnitude in the next few years, especially since large numbers of persons qualified to teach choose not to. While there are reasons to believe that the NCES estimates of demand are high, there is no doubt that certain teaching fields and many communities will not, absent major changes in the factors that shape the relevant teacher labor market, have enough qualified applicants to fill open positions.

This generalization is not likely to be disputed but it is not very helpful. In the past there has been only the most primitive labor supply information available to those responsible for replenishing the teaching corps. We note that NCES (1985) has undertaken an ambitious effort to remedy this problem, a development that could provide the CTQ&E important sources of data in later years.

Self-conscious efforts to use public policies to shape either the demand or supply of teachers have been infrequent and modest in scope and costs. So far as we can tell, there have been no careful evaluations of policies aimed at altering the quantity and quality of teachers. The difference policy change would make is inferred by looking at survey data on individual choices or by comparing data from different locations without controlling for the range of policy differences of labor market factors.

In most states and localities, responses to shortages in the supply of qualified teachers have been to avoid the sources of the problem. For example, many communities, states, and postsecondary institutions have lowered the entry requirements. One way this is done is by providing persons with so-called provisional certificates or with waivers of certification requirements. This "solution" usually results in the hiring of teachers who are less effective than those who meet the formal requirements for certification (Evertson, Hawley, & Zlotnik 1985). The CTQ&E will need to monitor the possibility of these ways of meeting the demand for teachers.

Other ways of dealing with teacher shortages that evade resolution of the supply problem and probably reduce the pressure to increase the incentives that might attract and retain more qualified teachers include hiring of part-time teachers and increasing pupil-teacher ratios. This last strategy also can reduce student learning.

The quality of the teaching force (profession) is determined to a large extent by the way processes of recruitment, retention, and reentry operate. It seems useful to analyze these processes as a labor market in which supply and demand are balanced at a level that determines the price and other conditions of employment. The job market for teachers is geographically localized and subdivided into many specialty areas in which considerable substitution can occur. There is an extensive framework of policies that regulate and otherwise affect the operation of each market.

But data on teacher supply and demand generally are not market specific. Moreover, the characteristics of the teaching force as it relates to supply and demand seems to be changing rapidly and in ways not accounted for in most supply/demand models. Among the more significant changes in the characteristics of the teacher labor market are: (a) graduation from teacher preparation programs has declined by more than 50 percent over the last decade (Feistritzer 1984),[2] (b) the rate of teacher attrition overall has decreased greatly--the percent of teachers with less than five years experience dropped from over one-fourth of all teachers to eight percent in 1983 (Plisko 1984), (c) the age distribution of teachers is very uneven suggesting big outflows of teachers in the not too distant future, (d) changes in the proportion of non-English speaking students and more rigorous high school and college entrance requirements are exacerbating shortages of bilingual and mathematics teachers,[3] (e) the proportion of teachers being prepared at smaller, often less selective institutions has increased (Feistritzer 1984) and Schlectly has found (in a yet unpublished study) that colleges and universities in North Carolina that raised standards lost enrollment more rapidly than those that did not, and (f) the introduction of preentry screens (tests, grade point averages and course requirements) could result in significant reductions in the number of prospective teachers, especially minority candidates (Manski 1985; Goertz, Ekstrom, & Coley 1984).

There are a number of other considerations that affect the dynamics of the labor market for teachers. For example, large numbers of young people, as many as 30 percent, who prepare to be teachers do not enter the teaching force each year. There is some reason to believe that these individuals are more academically able than entrants (Vance & Schlechty 1982) and it may be that the strategies that would induce these people to enter teaching would be different and less costly than policies that seek to encourage talented people to enter and finish teacher preparation programs. The ability to design such incentives is constrained, however, by the virtual absence of information about these potential teachers, a problem that the CTQ&E might address.

We suspect that one of the "sleeper" phenomena in the teacher supply/demand picture is the number of teachers who leave teaching and then return. Focusing on newly prepared teachers may be quite misleading if large numbers of open positions are filled by former teachers. State policies relating to certification and recertification no doubt influence the volume of this potential flow of teachers, as will career ladder plans. But, again,

there is virtually no research on this issue. Recent data provided by the New York State Department of Education suggests that reentry is a major source of new teachers. Between 1985 and 1990, New York expects to fill only 20 percent of its open teaching positions with first year teachers.

In summary, the ability of policy makers to design effective strategies to recruit the desired cadre of new teachers, to retain current teachers when that is desirable, or to facilitate former teacher reentry is significantly hampered by the absence of usable knowledge about the dynamics and characteristics of teacher labor markets. This problem is so great that even within highly visible subsectors of the market, such as the supply/demand situation for mathematics teachers, analysts differ significantly concerning the nature and scope of the problem (cf. GAO 1984; Jordan 1982; Howe & Gerlovich 1982; Rumberger 1984; Woo 1984).

The Meaning of and Need for Teacher Quality

One of the questions most likely to get a "yes" answer that might be asked of policy makers is: Do we need higher quality teachers? But the issue is more complicated than a simple "yes" answer warrants. First, what qualities do we want in teachers? Second, how much are we willing to pay to get them, especially since "improving" the teacher corps may mean diminishing the quality of some other set of occupations? Third, do we want or need all teachers to possess more of the quality we want more of in teaching or do we want or need only some teachers to have the scarce resources we seek?

Presumably, teacher quality refers to one or more characteristics that teachers bring to the instructional process that enhances the contributions they can make to student learning. While it is increasingly possible to describe the competencies we want teachers to have when the goal of schooling is academic achievement (Hawley & Rosenholtz 1984; Rosenshine 1983; Good & Brophy, in press), this research, even if one wanted only to promote student achievement, is not sufficiently robust to specify fool-proof criteria for teacher selection. Moreover, the evidence about the charcteristics of effective teachers that transcend the instructional practices themselves (e.g., intelligence, empathy, college performance or subject matter knowledge) is both limited and inconclusive, except for evidence of moderate relationships between (a) teachers' verbal ability and student test scores and (b) teacher subject matter knowledge and student performance in advanced courses (Evertson, Hawley, & Zlotnik 1984).

The teacher quality about which there is most current concern is academic ability, which has allegedly decreased in recent years (Schlechty & Vance 1983; Weaver 1981). The hard evidence on this point, however, is not very persuasive and the reasons why it is not suggest interesting research priorities for the CTQ&E or related NIE Centers. There is little doubt that high school seniors and college freshmen who declare an interest in education have very low SAT scores and that their scores relative to their peers with other interests have declined more rapidly. But large proportions of those 18-19 year olds who say they want to teach lose interest while other students, who on the average are stronger than the freshman cohort, develop an interest in teaching. Disproportionate numbers of the lowest ability students are among those who do not complete teacher preparation programs (Lyson & Falk

1984; Wendling & Woodbury 1984). Further, since the supply of teachers has exceeded the demand, one might assume that a disproportionate number of the least academically able would be hired, even if all of the academically strongest job candidates are not hired first (Schlechty & Vance 1983; Perry 1981). In any case, before one can conclude that the average academic ability of teachers has declined, one needs to know how the academic ability of teachers being hired compares to the academic ability of teachers hired at previous points in time. Such an analysis, especially if it included assessment of differences among state and school districts with different entry-level inducements, could be useful both in anticipating changes in the academic quality of the teaching corps given changes in the supply of teachers. It could also be helpful in determining what might be done to maintain or increase the academic ability of new teachers, if these are goals being sought.

In view of the preoccupation of many policy makers with the assumed inadequacy of the new cohort of teachers, it may be useful to note that the size of differences in academic ability of newer and more experienced teachers of the magnitude being discussed vis-a-vis more experienced teachers or the gains that one might reasonably expect to secure given new recruitment and incentive policies have not been linked directly to significant differences in student outcomes.

Another quality or characteristic about which there is considerable concern, at least among some policy makers and political activists, is teacher race and ethnicity. There is, however, little evidence that teachers' race or ethnicity is correlated with students' academic performance (Hawley et al. 1983). This does not mean, of course, that there are not other reasons for wanting a certain proportion of teachers from minority groups, especially in view of the significant increases in the proportions of minority children in schools.

It does seem possible to design strategies for decreasing the potential negative impact of preentry or precertification on minorities. Grambling University has successfully instituted such a plan and it seems replicable. But even if the effects of screening devices could be rendered race-neutral, there is considerable agreement among those watching the teacher labor market that black, Hispanic, and Native American college graduates are decreasingly likely to want to be teachers as other job opportunities open up for nonwhites (Darling-Hammond 1984). Virtually none of the major proposals on state or national policy agendas, however, are directed at increasing the number of minority techers. Indeed, it is readily demonstrable that various entry screen and teacher preparation program accreditation proposals will reduce the proportion of minority persons who are certified to teach (Goertz, Ekstrom, & Coley 1984).[4]

Even if one cannot link specific preentry teacher qualities to student performance, one might want to induce more persons with certain characteristics into teaching on the ground of theoretical sensibility, social values, or on the bet that increasing the incidence of certain qualities, such as the academic ability of teachers, would lead to increased status for the teaching profession. If this is the intention of changes in teacher incentives and recruitment efforts, it seems important to ask, however one defines the personal qualities one wants to increase within the teaching

profession, where should that quality be attracted away? In other words, what opportunities do we forego when we do that and are we sure that this is a good trade? A well designed research program relating to teacher quality should frame these trade-offs clearly and provide the information necessary for decisionmakers at all levels to understand the trade-offs so that they can make better informed choices.

Because the cost-effectiveness and social consequences of reallocating a given set of abilities away from other occupations to teaching are unclear, it would be useful to understand the feasibility and desirability of selectively attracting the abilities desired to specific roles that are deemed necessary to produce defined levels of performance for different types of students. The possible efficacy of this approach is suggested by research that shows that teacher subject matter expertise is related to student performance in science only in advanced classes (Druva & Anderson 1983). Such policies are being tried in some states where loan forgiveness programs are targeted on areas of severe teacher shortages. Houston's bonus plan for assuming certain responsibilities is another such strategy. Many universities adopt differential pay schedules that are market sensitive in order to hold qualified faculty in certain areas and the relevance of the strategy for schools has received some attention from teacher labor market analysts (Woo 1984).

An even more radical approach would be to restructure the teaching profession in terms of the scarcity of needed talent and the complexity of responsibilities. Career ladder plans move in this direction. Some European countries stratify teacher qualifications and salaries by level and type of schooling. This approach in a country like West Germany reinforces the class system but it apparently yields surpluses of highly qualified teachers. In any case, there may be lessons to be learned from efforts in other countries to attract highly qualified teachers by differentiating teacher roles and thus restructuring teacher demand.

To put all of this another way, do we care that teachers meet some threshold of quality or do we care about getting some persons of exceptional quality into the schools? While this is not entirely an either/or decision, different weights attached to different parts of the quality distribution of student achievement will determine whether we should be raising the average wage of teachers or whether we should use our scarce resources for career ladders and other incentives that would attract and retain teachers of exceptional quality.

These uncertainties about the teacher qualities being sought and the contributions particular qualities make to various learning goals we have for students obviously bedevil most of the policies aimed at improving teacher quality and may lead to misplaced priorities or unintended consequences of well-intentioned efforts to improve our schools. The kinds of issues we raise here are those that lend themselves to collaborative inquiry among different NIE centers.

The Complex Relationships Between The Needs of Individuals, Incentives and Career Goals

Many of the efforts to attract and retain higher quality teachers are based on the assumption that nonentry and exit are heavily influenced by the relative economic benefits of teaching compared to other careers. It is important to know, therefore, the extent to which these assumptions are correct and, if they are, the most cost effective ways to design the appropriate incentives.

It seems clear that people who choose to teach are especially motivated by intrinsic factors. They explain their decisions to enter the profession by citing the importance of working with children and helping them learn and their desires to work with other people (Lortie 1975; Wood 1978; Robertson, Keith, & Page 1983; see also Chapman 1984). Likewise, teachers already in the profession cite the human contributions that can be made as the most encouraging factor related to occupational choice (Page & Page 1982). There is also evidence that people who reject teaching as a career frequently cite low salary and low occupational status as reasons for seeking alternatives (Bogard 1983; Greenberg & McCall 1974; Musemache & Adams 1978; Page & Page 1982; Page, Page, Hawk, & Lindsey 1981; Robertson, Keith, & Page 1983). These people seem to attach greater importance to income and professional status than do individuals who aspire to teach and they see better opportunities for meeting those needs elsewhere (Musemache & Adams 1978; Robertson, Keith, & Page 1983; Rosenholtz & Smylie 1984).

We do not believe that one should read this research as saying that those who now teach do not value money or that those who do not teach have a very different set of values than those who do. Based on a large amount of research on motivation in private organizations (cf. Katz & Kahn 1978; Hersey & Blanchard 1982), it is more reasonable to imagine that the potential pool of teacher candidates have a range of needs of varying felt intensity that they would like to meet through their job. Their decision to satisfy these needs is a function of the relationship of the incentives they know are available from different job choices to the needs they value most subject to their perception of their likely access to and success in the tasks they see as most rewarding. Few people seek to satisfy but one need in their job (Vroom 1964). Thus, the ways to restructure the teacher labor market are many and may be subject to incremental changes depending on the strategies chosen.

There are a number of propositions seemingly worthy of research that follow.

- People who have worked with children and found that work satisfying will be more attracted to teaching than others who place a similar value on money as a payoff of work. [This proposition has significant implications for recruitment strategies and for teacher preparation processes (Tyler 1984).]

- Introducing effective new incentives will alter, in the aggregate, the weights assigned to different needs the teaching force will want to satisfy through its work.

- The intensity individuals assign to different needs will vary over time as some needs are better met than others and the types of incentives available in the context one is in changes one's perceptions of the potential costs and benefits of one's job, and as their life conditions change.

The cost effectiveness of entry incentives are dependent on several consequences of the incentive: (1) the retention of the individuals attracted by the incentive (because the cost is distributed accordingly), (2) the differences in the quality of teachers attracted and the relationship of that difference to teacher productivity, and (3) the payoffs of using those resources to produce student learning in different ways. And, as we noted above, measures of cost effectiveness would, ideally, examine the effects on other social goals of any reallocation of talent.

As we have noted, variations in new initiatives may allow study of these and other assumptions and both their theoretical and practical consequences. Even in the short run, significant opportunities exist to do low cost research on the power of different incentives. For example, since the economic benefits of teaching often vary considerably within the same geographic area, it should be possible in state-level studies to identify the relative contributions that certain strategies, such as increased teacher salaries, actually make increasing the supply of qualified teachers. Of course, other potentially influential differences in the characteristics of the workplace, such as the student-teacher ratio and social class composition of the student population, would need to be controlled.

However important economic incentives are to inducting persons of higher quality (whatever meaning is given to "quality"), there is reason to believe that they will not dominate retention decisions. Research in a wide variety of settings of the importance attributed to pay as a motivator and source of job satisfaction shows that pay usually ranks third or fourth (Lawler 1981). As is the case with respect to entry into the profession, research indicates that teachers stress the importance of intrinsic rewards as opposed to monetary rewards for remaining in teaching (Bishop 1977; Lortie 1975). Teachers who do not experience intrinsic professional rewards, at least under current reward structures, are most likely to leave the profession (Bredeson et al. 1983; Chapman & Hutcheson 1982; Litt & Turk 1983). Realizing that increasing the economic benefits of teaching may increase the weight put upon economic rewards by new teachers, it still seems reasonable to assume, and one would not from their work presumably want this to change, that the primary reward teachers hope to derive is a sense of being instrumental to students' academic growth--a belief or sense of efficacy in their own ability to positively affect student performance (Bishop 1977; Bredeson et al. 1983; Glenn & McLean 1981; Lortie 1975; McLaughlin & Marsh 1978, Sergiovanni 1974; Rosenholtz & Smylie 1984).

Efficacy seems to be a function of teachers' expectations for student performance and teachers' perceptions of student progress. This sense of efficacy is related to teachers' perceptions of professional accomplishment which in turn relates to decisions about whether to exit the profession (Frataccia & Hennington 1982; Litt & Turk 1983). Not surprisingly, the specific reasons that teachers give for leaving the profession are directly

related to those conditions that affect their ability to make a difference in student learning. These conditions include:

- o lack of opportunity for professional growth (Bredeson et al. 1983; Chapman & Hutcheson 1982; Frataccia & Hennington 1982);
- o inadequate preparation time (Page et al. 1981);
- o conflict with and lack of support or approval from principals and other administrators (Bredeson et al. 1983; Chapman 1983; Chapman & Hutcheson 1982; Chapman & Lowther 1982; Corwin 1965; Litt & Turk 1983)
- o failure to deal effectively with student misbehavior (Bredeson et al. 1983; Litt & Turk 1983).

Indeed, teacher attrition is highest in schools where these factors converge (Rosenholtz & Smylie 1984).

Teachers do cite money as a contributing factor in their decisions to leave the profession (Chapman 1983) but low salary is generally subordinate to other factors that relate to teachers' ability to be successful in the classroom (Bredeson et al. 1983; Chapman & Hutcheson 1982; Frataccia & Hennington 1982). Nonetheless, salary no doubt has an influence on retention; earnings potential and career advancement are more available in other careers than in teaching (Lortie 1975; Schlectly & Vance 1983).[5]

Although salary and other extrinsic rewards may affect a teacher's decision to leave or stay (as could occupational alternatives and their reward systems), increasing salaries and changing other aspects of the extrinsic reward structure may not help retain teachers to the same extent as addressing issues of efficacy, particularly where working conditions impede teachers' instructional success. As the discussion above suggests, the apparent reasons why teachers exit the profession seem to be consistent with the literature on teacher effectiveness and thus fit the motivational theory we discussed earlier.

The introduction of incentives to attract better qualified teachers should generally have a positive effect on the retention of more effective teachers insofar as they reward good performance and reduce the opportunity costs of not pursuing higher paying, higher status jobs. The effects of these policies, however, would seem to depend on how the programs involved are implemented (Hawley 1985a). For example, evaluation schemes that discourage teacher cooperation or that are seen as unpredictable may actually increase the exit of able teachers. Similarly, incentive plans that provide for fixed proportions of merit awards may lead to perceived reductions in status among many teachers and evaluation plans that are not tied directly to opportunities for professional development may lead to frustration and loss of self esteem. This last risk is illustrated by studies that show that most people rate themselves as more competent than do their supervisors (Meyer 1975).

In summary, research on teacher recruitment should recognize that teachers have a broad range of needs and that the effectiveness of strategies aimed at discouraging the attrition of talented teachers will depend not only on the fit between needs and incentives but on changes in the relative values

placed on different needs and on the perceptions teachers have of the effects of new policies and practices on the performance of their roles.

Conceptual Overview of the Teacher Labor Market

Those wishing to improve teachers and teaching in our school systems ultimately have to change the incentives and rewards available to current and potential school system personnel or they have to design specific training and other programs to improve what goes on in the schools. Successful reforms probably will combine elements of both approaches. That is why the two other major wings of the research mission involve teacher evaluation and incentives, and effective teaching and the workplace.

Reforms that are aimed at influencing the quality and effectiveness of teaching take place in an environment or market where individual teachers, prospective teachers, school administrators, and school boards make numerous decentralized decisions relating to entry or exit from teaching that affect each other, often in surprising and indirect ways. Thus it will be important to link the other two research programs to the research on the dynamics of the teacher labor maket and how alternative policies might alter those dynamics under different conditions. The basic research of this program is designed to understand and measure (where possible) what generally determines the many individual choices made in the teacher labor market and how such choices interact. We need to understand how teacher labor markets at school, regional, state, and national levels work because it is these markets (or decision-making environments) that constrain and set the stage for most of the programs and policies that decisionmakers might consider implementing. There are, of course, political, social, and other constraints on school reforms, but for the intellectual and practical activity of the Center, understanding the teacher labor market must be a major research priority that provides a strong structure supporting the other two major research programs. Thus labor market analysis should be based not just on the work of economists, but also other disciplines such as sociology and political science.

The basic labor market research done in the context of an educational research center should be of special interest to policy-makers at both the local and national level, because it emphasizes the nature and the magnitude (if the research is quantitative) of the tradeoffs faced by decisionmakers in choosing among policy options. Numerous examples of such tradeoffs could be cited but a few will illustrate the point. How does higher salary offset more expensive working conditions (e.g. smaller classes, more aids, etc.) in attracting the most effective teaching force and how does this vary across different types of teachers and school situations? In dealing with teacher shortages in particular schools or subjects, what are the relative costs and consequences of changing salaries, reducing teacher certification requirements, or modifying curricula? Will training programs for current teachers or a salary increase be a more cost effective way of improving teacher quality and effectiveness and how does the answer vary across different situations? Are strategies to attract beginning teachers or to reinduct former teachers better and under what conditions? In distributing budget cuts, what alternatives--including changes in salary structure, composition of the teaching force, etc.--are likely to have the least impact on the distribution of student performances? If higher quality teachers are a

school's goal, is a salary strategy producing higher variance among teacher salaries (e.g. merit pay schemes) more effective than the same increase distributed more evenly and how does the answer vary across school, community, current teacher workforce, and other conditions?

Confronting these and other such trade-offs may force policymakers and educators to talk more candidly about whether we are really willing to pay the costs--in salary and working conditions--to attract a much more academically able teaching corps. Such considerations may in turn lead to some more careful thought about desirable mixes of teacher qualities under different assumptions about how schools can be structured.

Theoretical Fundamentals of the Teacher Labor Market

Whenever someone works as a teacher, two types of decision makers have to have come to an agreement: (1) the particular teacher who agrees to supply his or her time and effort to the school and (2) the school authorities who offer (or provide effective demand for) the job. Although both sides must agree, it is often convenient to talk about the two sides of the market separately. In this country, there are thousands of school districts and millions of teachers (and millions more potential teachers) all using the information available to make those decisions that best further their interests or meet their needs. Yet despite this extreme decentralization, there have been relatively few crises (e.g., large numbers of teacherless classrooms or vast teacher unemployment), which indicates that this market has a great deal of regularity (including a capacity for adjustment) and that these regularities have worked relatively well at coordinating these millions of different decisions.[6]

We are not arguing that the teacher labor market is perfect, perfectly competitive, or anything beyond the simple point that decisions seem sensitive in functional ways because otherwise we would observe more commotion and perceived breakdowns in our unplanned (though heavily unionized) teacher labor markets that conventional wisdom would suggest to be the case. Supply and demand seem to adjust, if imperfectly, and we need to understand those adjustments. They tell us how the quantity and quality of teachers get distributed among schools and what we would need to do if we wanted to change those distributions in order to create more or better or cheaper or different schooling for our children. It is also important to understand where and why this market may be failing (e.g., assertions of persistent math teacher shortges in part because of general politically and organizatinally imposed limitations on our ability to pay premia for such teachers). We may also have to know whether the speed of adjustment of the market is likely to be adquate over the coming decades.

Let us first consider the supply side of this market--the decision of qualified, as determined by the employer, individuals to seek the relevant qualifications and to offer their time and effort to a school system for some period of time under certain working conditions, including salary.

While mid-career retooling is still a possibility in our economy, the careers of most teachers begin with decisions in college (or immediately after) to seek teaching qualifications. Economists usually think about this

as a "human capital" decision where the student compares the costs of, say, becoming a teacher (including the foregone earnings involved in time spent training rather than doing something else) with the expected present value of the lifetime income and satisfaction associated with that occupation for that particular individual. The individual tries to pick the occupation which is expected to be best for him or her, but of course college students don't know their relative merits in various occupations so there may be some hedging (get a teaching certificate just in case some other occupation doesn't work out). This admittedly simple view of occupational choice has some immediate implications. Students are more likely to become teachers if their other alternatives are worse (including higher unemployment in other fields or lower wage prospects), if it is cheaper to become a teacher (in years of training or other ways), if the teaching option offers them more career flexibility, if their expected salary is higher (and we do not know whether they look at mean salaries and how they respond to salary differentiation--that probably depends on their self-assessment of their abilities and their attitudes towards risk), and if there is more non-pecuniary compensation (e.g. intrinsic rewards) in the profession as compared to others to which the individual might have access.

There is also a decision to make about teaching specialties and, since there has been relatively little salary differentiation in education, that decision is heavily driven by the probability of finding a "suitable" job quickly upon graduation, the perceived costs of training for alternative specialties, as well as the prospective teacher's interests and talents.

The pool of potentially qualified teachers may be heavily determined according to the above scenario, but a substantial fraction of that pool either never enters teaching or drops out of teaching in particular places for particular periods of time. Dropping out may not necessarily be a bad thing, since it often reflects useful sorting and matching of individuals to jobs in our complex economy. But to understand teacher supply and its quality distribution at any point in time, it is important to understand why certain types of teachers leave or remain in particular schools or even in the profession. And those who do drop out of the profession always provide a reserve pool and the re-entry behavior of this large group can easily provide substantial adjustment to labor market imbalances. Changes in this group's behavior could easily swamp, for example, the predictions of simple models about teacher shortages over the next decade in some regions for some specialties.

Teacher attrition and re-entry decisions are, as in the original decision to teach, a result of a comparison of alternatives. In the case of teacher supply, however, one of the alternatives is more directly manipulated by school authorities. Through various devices the demanders of teachers have many opportunities to influence decisions to remain in the system and, naturally, can directly affect a teacher's ability to remain at a particular school.

This takes us to the demand side of the labor market. School authorities derive their demand for teachers from their need to educate the children in the district. This is largely a demographic phenomenon, although the authorities have many options to chose among teachers. School authorities can influence the distributions of qualities of teachers and the experience

levels of teachers among schools. They can vary class sizes, curricula, in-service training programs, and many other aspects of school production in ways that will affect the size and the distribution of the different teaching characteristics of the teaching force in particular schools. So the way school authorities select and sort their teaching force and the way they influence and repsond to the distribution of teaching qualities in that teaching force is, in our view, a question that has received far too little attention in the literature. Little aid in understanding these questions derives from more traditional economic analysis which would focus on the school authorities as cost minimizers subject to certain quality constraints. That is why we will need, over time, to develop the theoretical underpinnings for thinking about the optimal mix of teachers and the manipulation of teacher effort by school authorities.

Directions for Research

Research projects of the CTQ&E should be designed to understand some aspects of the teacher labor market outlined here. All questions cannot be answered at once, but specific projects can be developed to examine key pieces of the overall puzzle of how teacher labor markets work. The primary focus of these projects should be the key decision points of potential and actual teachers as they move through their careers and the role of school authorities in manipulating the attractiveness of teaching in order to influence the distribution of teachers in their schools.

Research projects should, of course, go beyond descriptions of how the labor market--more accurately, labor markets--for teachers operate. In general, they should focus on particular policies that are being discussed as ways to meet the demand for teachers with well qualified applicants. Such policies are legion but most current options fall into one of the following categories:

1. preentry requirements (tests, requirements, extended programs, etc.)

2. alternative certifica plans that by-pass conventional teacher preparation programs

3. special loans and scholarships (preentry)

4. increased economic benefits (i.e., special bonuses, salaries, merit pay)

5. status benefits (i.e., career ladders, recognition, authority)

6. improved working conditions (i.e., smaller class size, office space)

7. increased intrinsic rewards (i.e., better information about student achievement, opportunities to participate in decisionmaking)

The last two of these have received virtually no attention from policymakers concerned with teacher recruitment and retention. But they are getting

increasing attention from researchers and working conditions, of course, have always been of concern to teachers and their organizations (see Hawley 1985b).

But how is one to know whether these policies work or, more importantly, whether one works better than another? Too often, in our minds, the test of whether the teacher supply is adquate is simply the number of positions left unfilled by teachers of certified qualities and we may know something about the pool in this regard. But this is hardly enough evidence upon which to judge the efficiency of different strategies. It is altogether possible that we could design policies that could result in a reduction of resources available to teacher other subjects. Moreover, it is not clear that students would learn more mathemtics if taught by first class rather than second class mathematicians.

Thus, the Center should look, as the data permit, at a range of possible outcomes from efforts to attract and retain people who have the potential to be, or are, effective teachers. Such outcomes might include:

1. the quantity of teachers available to teach specified curricula

2. the quality, measured by academic capabilities, of teachers

3. the effectiveness of teachers, measured by their classroom performance related to student learning

4. the economic cost

5. consequences for the restructuring of schools as workplaces (e.g., the role of teachers, the nature of instruction, etc.)

6. the re-entry of effective former teachers

7. consequences for the profession and teaching as a career (e.g., the stability of the work force, highly differentiated tasks based on mode of entry, etc.)

In attempting to understand the market for teachers and how it is affected by a range of polices, the Center should use different types of data from a range of different settings in efforts to answer the basic question: What mix of policies and practices has what range of consequences under what types of conditions?

We draw attention to the fact that most of the literature on teacher career decisions does not take into account variations in labor market conditions. Moreover, while almost all researchers recognize that it is much more difficult to attract some kinds of teachers than others, most analyses do not engage the reality. More attention to the first of these conditions may explain the disproportionate exit rate of more academically able students that Schlechty and Vance (1981) found in their study of North Carolina teachers. However, the data analyzed for that study covered a period during which there was a low demand for teachers. Since vacancies in more attractive schools were filled by internal teacher transfers, the most able college students who became teachers ended up teaching in the least satisfactory environments within otherwise desirable school systems (where the best salaries were paid,

etc.). Less able students presumably took what jobs they could get but had few exit options and stayed in the field. The lack of opportunity to move to more attractive positions or to administrative roles because of a continuing surplus of teachers and persons with administrative experience may have caused more academically able teachers to leave. The point here is that these dynamics need to be examined both for theoretical reasons and because personnel assignment policies, the collective bargaining agreement willing, could address, at least in part, attrition of the sort suggested here.

To understand the sources and consequences of teacher entry and turnover, especially the economic consequences, national data are needed to examine the generalizability of results and district, teacher, and school level data are needed to make sure that we understand what various statistical and theoretical results mean. This will also help in translating research findings into useful policy options. That is why we argue that national, state and local data are necessary to analyze who enters and who leaves the teaching profession and why.

Effective Teaching and the Workplace

Teacher effectiveness, we have argued, is only partly accounted for by the qualities that teachers bring with them to the act of teaching. Schools need to promote effective teaching practices by continuing to enhance the knowledge and skills of teachers and by ensuring that conditions in schools support effective teaching.

There is an increasing awarness on the part of many researchers and some policymakers that what happens at the school level is what happens when it comes to educational change. This recognition runs smack into the propensity of many state policymakers to prescribe not just goals and standards but detailed processes by which improvement should take place. Be that as it may, teacher effectiveness, as well as teacher retention, depends a good deal on the nature of the school-level support and conditions of work. As Richard Elmore and Milbrey McLaughlin (1984: 4-5) have observed:

> Across the array of diagnoses and solutions runs a bias that distinguishes the new reform agenda from all others in the past twenty-five years. The bias is "the school as the unit improvement" (Goodland, 1984: 31). The quality of education improves, the argument goes, as the quality of classroom instruction improves, the quality of classroom instruction improves as the schools function more effectively and schools function more effectively as all features of the system focus on the prerequisites of effective school performance. The problems of the whole, in other words, are the problems of the smallest unit. "Upgrading classroom life is best done on a school-by-school basis. Teachers assist each other. Principals help create the setting and secure additional help. The action and rewards for in-service education and school improvement shift from where they have been traditionally--with the superintendent's office and districtwide activities--to the principal's office and the school as the key unit. Research increasingly supports such a process." (Ibid.: 129) Indeed, it does. If our analysis of prior reform efforts is correct, all roads lead to the classroom and the school.

Thus, we believe a research program dealing with certain ways of promoting effective practice within schools is central to the work of the CTQ&E. We recognize that this work could well overlap the work of the other centers, especially the Institute for Research on Teaching, the two centers dealing with effective schools, and the Center on Techer Education. But, as the Grant Announcement notes: ". . . The NIE Center on Teacher Quality and Effectiveness will need to understand every aspect of the context of teaching, from the factors that influence the individual teacher's decisions and actions through the characteristics of the classroom and the school to the broader framework of district and state policy" (p. 15).

Moreover, the Center is to focus on teacher perspectives and how they shape and are shaped by the effects of public policy. Teacher perspectives are clearly affected by the environments in which they work, by their peers and by their interactions with principals.

The previous discussion has focused on issues relating to the recruitment and retention of teachers of specified quality. For teachers of any given quality there appear to be three general ways to increase their effectiveness, that is, the contributions they make to student learning:

1. increase their competence, i.e., their knowledge and skills and their ability to use them

2. establish conditions of work that allow teachers to use their competence at the full level they desire to do so

3. create incentives that motivate teachers to work harder or to reallocate their efforts more productively.

The second program area of the CTQ&E should focus on the first two of these general strategies. Issues of incentives and motivation should be dealt with in a third research program.

Enhancing Teacher Competence

Once we have the types of people we want in the profession, how do we ensure and increase their competence? How do teachers learn to teach? There is some evidence that preservice education makes a difference, that is, teachers with formal preservice training are generally rated as more successful than those without it (Evertson, Hawley, & Zlotnik 1985). Still, many teachers report that they are ill-prepared for their first classroom experiences (Veenman 1984; McDonald & Elias 1983; Fuller 1969). Teachers reentering the profession and those with continuing experience need to upgrade their skills and learn new things. If teachers need to continue to learn to teach on the job, what are their sources of information and assistance? We do know that learning from experience or trial and error, and drawing techniques from models of teachers that teachers had in school are not sufficient ways to learn and may even be counterproductive (see e.g. Buchmann & Schwille 1983).

There are at least three general approaches to increase the competence and effectiveness of teachers in the work force:

1. opportunities for "in-house" staff development which range from formal training and instruction to opportunities to observe exemplary practices to relationships with and learning from colleagues

2. accurate and frequent feedback about behavior and performance

3. professional development external to the workplace such as additional formal education and participation in conferences and workshops.

We will review briefly some of what is known about each of these general strategies and identify some of the more important issues the CTQ&E might address over time.

Staff Development. Staff development, which Fenstermacher and Berliner (1983) define as "the provision of activities designed to advance the knowledge, skills, and understanding of teachers in ways that lead to changes in their thinking and classroom behavior" (p. 4), is potentially one of the most effective ways to enhance teacher competence. Research on change and the implementation of innovations in school settings shows clear relationships between staff development and the implementation of new programs and the improvement of individual teacher practice (Fullan 1982).

Staff development often has multiple purposes and can be carried out in many different ways. Some of its purposes are to effect compliance to rules or school policies, to remediate perceived deficiencies, and to enrich teachers' knowledge and skills. Ways that staff development is carried out are also varied and include: continuing formal educational experiences, programs in the school setting, teacher centers, and interactions with colleagues. Potentially, telecommunication linkages could be used to provide teachers with learning resources.

While we know that staff development offers important opportunities for the enhancement of teacher competence and effectiveness (Griffin 1983; Wade 1984; Sparks 1983), we do not know much about its cost effectiveness. While data for many districts are not readily available, the financial commitment for some school districts can be quite large ($1,000 to $1,700 per teacher in districts surveyed by Moore & Hyde 1980). Until 1981 the federal government was investing $340 million per year through 22 discretionary and formula grant programs in various training programs, most of which were inservice. Although the expenditures have been reduced in the past few years, extrapolating from available cost analyses, the annual bill to the public for formal staff development programs in our public schools is probably over $2 billion per year (see Fenstermacher & Berliner 1983).

Despite this major investment, we do not really know how effective staff development is in promoting student achievement. Most "evaluations" of staff development programs do not go beyond simple and more or less immediate statements of personal satisfaction (Loucks & Melle 1982). In general, the literature is critical of typical staff development efforts. For example, Joyce, Bush and McKibben (1981) found that on the whole teachers spend only about three days a year on average in staff development activities. In many

schools staff development efforts are one-shot, once a year programs usually carried out before school begins without follow-up. Most staff development programs are general in nature and focus on attitude building or implementation of curricula rather than on instructional or classroom management strategies, or on problem solving. Finally, many staff development programs are developed and conducted outside the context of the school and are designed by school district administrators and tend to address their general concerns rather than teachers' perceived needs.

Despite these criticisms, a recent meta-analysis by Wade (1984) finds that programs studied in comparison to a control or other group not involved in staff development were "moderately effective." However, given the overall absence of careful evaluation of staff development efforts, we expect that the programs employing relatively sophisticated evaluation plans were largely high investment, carefully designed innovations that were unlike the typical program in content and quality of implementation.

The literature does suggest some consensus on some different components of effective staff development programs (Sparks 1983; Joyce and Clift 1984; Hawley & Rosenholtz 1984). Some of these components include:

- o focusing on skills that have a demonstrable relationship to student learning;
- o training that is both practical and theoretical enough for teachers to be able to adapt what they learn to their specific settings;
- o planning and developing activities on the basis of the problems and concerns identified by both teachers and administrators;
- o providing training activities which include objective evaluation of teachers, strengths and weaknesses, presenting new information, demonstrating new skills, providing opportunities for practice, and providing concrete feedback;
- o supplying technical assistance to help teachers and administrators to implement new ideas;
- o ensuring administrator support for, and involvement in, training at the school level;
- o integrating continuous staff development activities into the regular daily activities and routines of the school.

Wade's (1984) meta-analysis does not, however, support all of these conclusions. In particular, she raises questions about whether programs should be school-based, how useful peer instruction is, and how learner-centered the program should be. These are crucial issues affecting the design of programs and might be productive areas of inquiry for the CTQ&E. There are other questions that could be productively pursued by the CTQ&E. What are the most cost-effective processes of training, delivery of new information and opportunities for practice? What is useful and important content for staff development programs? How can teachers be trained to use new knowledge? What kinds of skills are required for adaptation? What are

school conditions that support ongoing staff development and experimentation with, and adaptation of, new knowledge to solve continuing problems? Many of these issues were engaged in a recent symposium on staff development published by the National Society for the Study of Education (Griffin 1983).

While concern about professional development is usually focused on formal inservice training, what teachers learn from each other in their day-to-day interactions around the tasks of teaching is probably the major way that they enhance their competence (Rosenholtz & Smylie 1984). The way in which one acquires skills related to teaching, the types of skills acquired, and the extent of one's possible skill development, depend largely on the school's prevailing norms and the patterns of collegiality and interaction among peers (Little 1982).

Learning from feedback about performance. In theory, one significant source of information teachers might have is the evaluation of their performance by supervisors or peers. However, in general, evaluations have not proven to be a good source of information to teachers on how to improve their practice. Reasons for this are that these evaluations typically are infrequently done, most often conducted by marginally trained people who are unclear with respect to the purposes and criteria of evaluations, and the instruments are by and large subjective, do not allow for collection of behavioral data, and do not prescribe clear means for improvement. In addition, these efforts are often ceremonial rather than substantive. (See Bishop 1977; Lortie 1975; Natriello 1984; Darling-Hammong, Wise, & Pease 1983).

The importance of collegial exchange in learning new skills and knowledge necessary to implement changes in practice is substantial. Without the benefit of positive collegial exchange (with teachers or administrators), teachers in isolated work settings have fewer opportunities to grow and move toward adopting values that sustain isolation (i.e., maintaining the status quo; relying on personal experience to deal with problems; and orientation toward control).

The problem of teacher isolation in the majority of schools is one of the greatest impediments to the development of teaching skills (Rosenholtz & Smylie 1984). Because of the cellular organization of many schools, teachers spend most of their time isolated physically from colleagues without the benefit of observing other teachers teaching in other classrooms. Lortie (1975) reports that 45 percent of the teachers in his study had no contact with other teachers in the course of their workday and another 32 percent had only occasional contact.

Teachers in isolated work settings tend to believe that they alone are responsible for running their classrooms and that to do so successfully requires maximum autonomy or independence. Many teachers fear that requests for assistance from colleagues will imply a lack of teaching competence (Bishop 1977; Glidewell et al. 1983; Lortie 1975). This fear is particularly acute for beginning teachers (Hoy 1969; Silvernail & Costello 1983; Warren 1975). Because of the implications that requests for or offers of assistance have for perceptions of teaching competence, most teachers feel a clear moral constraint against offering or asking for suggestions about even the most routine matters (Glidewell et al. 1983; Lortie 1975; Walberg & Genova 1982).

However, fruitful collegial exchange seems to reinforce further productive interaction; it leads to group problem-solving, social support, and ongoing professional development. As new ideas are infused into the collegial network, better solutions to classroom problems are found. Collegial norms can support informal evaluation of professional performance and feedback which enhances competence. The relationship of collegiality to the development of teacher competence appears to be recursive. The development of competence contributes to teacher satisfaction and efficacy. As teachers get "better" they feel more competent, and strive to uphold the system that contributed to this competence.

However, these conditions do not usually occur without the contributions of principals. Principals in collegial schools promote norms of continuous improvement and collegiality. They hold and support expectations that improvement in teaching is a collective rather than an individual enterprise and that analysis, evaluation, and experimentation in concert with one's colleagues set the conditions under which teachers become more effective. Effective principals also structure interactions that promote the development of instructional competence by encouraging cooperative work arrangements, providing for teacher participation in technical decision making and encouraging teachers to teach each other (Peterson 1977-78).

We know about the importance of collegial environments in enhancing teacher capabilities and in improving educational opportunities for students; however, there are some areas about which we know little. Several questions which might be fruitful areas for investigation for the CTQ&E are: What strategies might we use to create school environments conducive to teacher collegialty? How can we link positive interaction to other means to enhance capabilities? What implications do the policies that are created (e.g., evaluation, new reward structures, performance-based pay) have on encouraging or discouraging collegiality (see Rosenholtz & Smylie 1984; Hawley 1985a). How do we interrelate collegial environments and staff development? How is new information/knowledge from external sources brought into and exchanged through the collegial network?

In some ways, the teacher center movement, which gained considerable impetus from federal support now terminated, was and is an interesting response to some of the criticisms of staff development programs and the strengths of peer support and assistance. But our search of the literature has not yet yielded studies that link the outcomes of teacher center programs, which varied enormously in their emphases and structures, to objective measures of teacher effectiveness. One potentially promising direction of inquiry might be to examine which school systems sustained teacher centers once federal funds were no longer available and why this approach to staff development was continued in some systems but not in others. The Higher Education Act authorizes the funding of such centers but no funds have been appropriated for that purpose.

External opportunities for professional development. The most common forms of this general approach to increasing competence are (a) returning to a university for additional coursework, perhaps in pursuit of another degree, and (b) conferences and institutes. As a strategy for improving teaching competence, most university coursework is not seen by educators as very

effective. Such coursework is often structured around the topics university faculty think are important rather than around specific learning needs of the teacher, are often seen by teachers as insufficiently practical, and are often focused on some role the teacher may assume in the future (e.g. principal, supervisor, etc.) rather than on the immediate activities in which the teacher is currently involved. Moreover, many school systems implicitly pass the responsibility for staff development to universities and individual teachers so that they develop little expertise and commitment to the management of teacher competence.

These limitations have caused many states and localities to move away from reliance on university-based staff development unless these efforts are genuinely collaborative and focused on specific immediate needs of teachers. Legislation passed recently in several states supports professional development activities that are more or less independent of universities. Ironically, state funding policies and university accounting procedures often discourage such collaboration by treating on-site and/or more informal modes of facilitating learning as service rather than part of a professor's instructional load. Florida's practice of providing school districts with what amounts to vouchers to be used for staff development seems to have encouraged the responsiveness of universities and other training sources to district-defined needs, but these priorities may miss the mark for many teachers.

Special one-time workshops, symposia, and conferences external to school systems seem to be a continuing part of the staff development picture, but there is little research on their actual impact on teacher behavior and student learning. Even such highly visible and costly programs as the National Science Foundation teacher institutes cannot point to hard evidence of their effectiveness (GAO 1984). On the other hand, there is no question that teachers value such opportunities for professional development. Indeed, some school districts distribute such opportunities as rewards for effectiveness rather than ways to enhance competence, and thus use them as motivating devices.

In summary, the professional literature is replete with discussions about and testimonials on behalf of the importance of continuing efforts to enhance teacher competence. But, in fact, most school systems and states do not give this concern very high priority. There appears to be some increased attention to various forms of inservice training in school systems that have bought into the school improvement "movement" (cf. NCEE 1984) and in universities. Most of the national commission reports and most state reform plans, however, give short shift to discussed above for increasing teacher competence. Perhaps the reason that the promise and the reality of efforts to increase competence are so far apart is that the evidence on the sources and magnitude of their effects is so dimly understood. In the context of widespread criticism of how these activities are now typically performed, potential investors may need to be shown what the return on their investment can be. This is, of course, an appropriate task for the CTQ&E, perhaps in collaboration with one or more of the centers identified above.

Productive Work Conditions

The effectiveness of teachers is affected significantly by the conditions within which even the most motivated and competent teacher does his or her work. Indeed the conditions of work themselves are crucial to the motivation of teachers. For example, new ways of recognizing teachers for enhancing student achievement, a goal most teachers aspire to attain, will yield teacher effectiveness to the extent that barriers to effectiveness are reduced and teachers are not only able to use their competence and time most productively but come to believe that the prospects of promoting student achievement are increased.

What, then, are some of the conditions within schools that are most likely to facilitate the application of teaching competence? Hawley and Rosenholtz (1984) recently reviewed hundreds of studies (many of which were syntheses of many other studies) related to the school-level sources of student achievement and identified ten types of organizational conditions that appear to facilitate effective teaching:[7]

1. A strong "organizational culture" in which key values and goals are clear and widely shared (see, e.g., Edmonds & Frederickson 1979; Rutter et al. 1979; McLaughin & Marsh 1978). This condition has been found to be an organizational characteristic that distinguishes effective organizations from ineffective ones regardless of the organization's mission (Deal & Kennedy 1982).

2. Mechanisms for providing teachers with feedback about their performance and the achievement of their students (see e.g., Azumi & Madhere 1983; Guskey 1984).

3. Little or no disruption of instructional time (see, e.g., Coleman, Hoffer, & Kilgore 1982; Cooley & Leinhardt 1980; Lortie 1975). This includes ensuring that teachers have the material resources they need (Wellisch et al. 1978) and minimizing routine nonteaching tasks (Phi Delta Kappa 1980).

4. Opportunities for facilitated task-related interaction (see, e.g., Anderson 1982; Glidewell et al. 1983; Little 1982).

5. Clearly defined roles and responsibilities within the school (see, e.g., Lipsky 1980; Keith 1979; Armor et al. 1976).

6. A well articulated curriculum that facilitates transitions of students and collegial interaction (see, e.g., Purkey & Smith 1983; NYSDE 1974; CSDE 1980).

7. Stability in programs and staffing (Venezky & Winfield 1979; Glenn & McLean 1981).

8. A climate that minimizes student discipline problems (see, e.g., Evertson & Emmer 1982; Stallings 1980; Brophy & Good in press) and provides support for dealing with them (Griffin 1983).

9. Manageable student diversity. The idea here is that while student diversity in academic ability has positive educational value when teachers can manage it, excessive diversity or "skewness," will often cause teachers to abandon more effective instructional practices in order to control the classroom. Of course, teachers vary in their ability to cope with diversity. This is a particular problem for beginning teachers (Evertson 1982; Griffin 1983).

10. Support from the school's "environment," especially parental assistance in the education of their own children (see, e.g., Leithwood & Montgomery 1982; Walberg 1984).

We recognize that these aspects of schools are the concern of other NIE Centers. The role of the CTQ&E should be as we see it now, to examine how these and perhaps other conditions in schools affect and are affected by current efforts in states and localities to improve teacher quality and effectiveness that do not begin with changes in the conditions of work.

Directions for Research

We have tried to establish the importance of research on teacher opportunities to learn and the creation of conditions to support effective teaching practices to the development of knowledge and policy that would enhance teacher effectiveness. The conditions that promote effective teaching seems also to contribute to job satisfaction and reduce teacher attrition.

The CTQ&E should not be looking directly at how instructional technology can enhance teacher effectiveness. Instead, the focus on the school as a work place should emphasize how teachers learn on the job, formally and informally, and how schools affect individual and collective values that foster effective teaching.

Evaluation and Incentives

The different types of reform proposals on the national school improvement agenda number in the dozens. Perhaps the most far reaching of the widely discussed proposals are those that would tie teachers' pay to their performance.

Paying teachers some part of their salary on the basis of performance seems to be an idea whose time has come. Some national commissions have endorsed merit pay. Seventy-five percent of those responding to a recent Gallup Poll favor basing teacher salaries on merit (Gallup 1984b). Various forms of performance-based pay have been implemented in numerous school systems, about half the states have mandated such incentives or are actively considering them, and superintendents of school districts overwhelmingly endorse "merit pay" (AASA 1983). Of all the stakeholders in education, only teachers do not seem to favor prformance-based rewards (although about one-third do) (Gallup 1984a).

The current momentum behind merit pay is fueled by two basic assumptions: (1) the quality of teaching is the most important determinant of

the quality of schools, and (2) the quality of teaching is declining. The first of these assumptions is correct if we measure the quality of schools by their ability to influence student learning independent of the students' background and IQ (cf. Hawley & Rosenholtz 1984). There is no direct evidence on the second assumption, although there is some evidence that the academic ability of the teacher pool is declining.

Merit pay, as an independent strategy to improve teacher quality and effectiveness, has had a troubled history (Johnson 1984). Merit pay has been abandoned by most districts that have tried it (Porwall 1979). And, there is little evidence that it is an effective motivational device even in the private sector (Lawler 1981). Most observers find the problems to implementing merit pay unsolvable (Johnson 1985) and where it does seem to work, it is largely innocuous (Cohen & Murnane 1985).

What is new about the currently popular proposals for performance-based pay is that they are often tied to the idea of a career ladder that teachers can climb and thereby attain not only higher pay but higher status. Advocates of career ladder plans see them as motivational devices for those in the profession and as attractors for ambitious and bright young people who have eschewed teaching because it has "no future." There can be little doubt that career ladder plans are receiving a lot of attention. Several states have adopted a version thereof and a majority are said to be seriously considering their adoption (Cornett & Weeks 1985).

There appear to be few detractors from the notion that teacher careers should allow for advancement and for some kind of recognition for outstanding performance. But, if status and economic rewards are to be assigned on the basis of performance, then evaluation systems must be developed. There is considerable debate about whether evaluation plans can be devised that are technically sound, nondivisive, and facilitative of teacher improvement.

Because they result in specific definitions of good teaching and hold the prospect of restructuring the profession as well as the schools, state level attempts to institutionalize systematic evaluation-based career ladders seem to us to be the most radical of the politically popular strategies for reform. The CTQ&E should study them, as well as locally initiated programs.

Career ladders are not, of course, the only incentives aimed at motivating inservice teachers being implemented. Let us step back for a moment to review some theory and evidence relating to the incentives that might motivate teachers and to the problems that are involved in development of effective strategies for teacher evaluation.

Developing Incentives That Motivate Teachers

There are hundreds of studies of the sources of human motivation in work organizations. There are a relative handful of studies of teacher motivation most of which, like most of the research on motivation in private organizations (Mahoney 1979), rely on self-reports or depend on inferences about the relative influence of different initiatives absent any valid comparison groups.

We have conceptualized the problem of motivating teachers as the development of incentives that teachers perceive to be attainable and that they want to pursue because the incentives will meet certain needs teachers have. Numerous factors shape the dynamics among these variables and their affect on student learning.

Teachers bring to their work a range of different values and needs. Many of these are represented in NIE's list of "perspectives" and some have already been discussed in this report. Work organizations typically have a number of different incentives they can employ in relation to teacher needs.[8] Schools, however, have not enjoyed access to all of these incentives because of the flat structure of school systems, the nature of pay plans, the isolation of teachers from their peers, and the weakness of evaluation processes, among other reasons.

Not surprisingly, much of the research on worker motivation has focused on pay. Since we cannot possibly deal here with all of the potential ways to increase the motivation of teachers and since teacher pay is so central to the current school reform agendas in many states and localities, let us concern ourselves with the issue of teacher pay and, more particularly, performance-based pay.

As was noted above, studies of the importance teachers give to pay in describing the things that motivate them typically show pay to rank third or fourth in order of consequence (Rosenholtz & Smylie 1984). Both aspiring teachers and those on the job say that they want to become or became educators because they enjoy working with children and helping them learn. In general, they talk in altruistic terms about the contributions to others that they hope to make or feel they are making (Lortie 1975; Wood 1978; Robertson et al. 1983; Page & Page 1982). As Rosenholtz and Smylie (1984:4) conclude in their extensive review of research on teacher motivation: "The primary reward they hope to derive [from their careers] is a sense of being instrumental to students' academic growth--a belief or sense of efficacy about their own ability to positively affect student performance. This sense of efficacy is highly related to teachers' perceptions of professional accomplishment." Not surprisingly, teachers who do not believe in their ability to meet student needs are less effective than those with a strong sense of professional efficacy (Hawley & Rosenholtz 1984).

It would be irrational for persons who give high priority to making money to enter a profession which historically has been low paying. If teacher salaries or potential earnings are to be substantially higher than they have been, it might be that the type of person attracted to teaching would change and, therefore, the motivational value of pay might be greater. But we do not know this and studies of other professions and jobs suggest that it is unlikely that increased pay, or performance-based pay would significantly change the relative impact of monetary incentives on teacher behavior (Lawler 1971; Mahoney 1979). Indeed, a number of studies conclude that the introduction of performance-based pay, in education and in other settings, on balance has negative consequences (Silverman 1983; Educational Research Service 1979; Perry & Pearce 1983; Calder & Staw 1975; Jones & Mawhinney 1977; Deci 1972; DeCharms & Muir 1978; London & Oldham 1977; Meyer 1975).

Despite generally discouraging research on the motivational payoffs of perrformance-based pay, at least some of the reasons why it has been relatively ineffectual appear to be related to specific weaknesses in the structure of the programs and the way the plans have been administered.

In general, performance-based pay plans (and many other incentives as well) fail because the noneconomic needs of individuals are not dealt with, because they reduce the effects of other incentives that have motivating power, or because the goals one must attain to be rewarded are not seen as attainable due to limitations on opportunities, perceptions of relative lack of competence, or unpredictable or unfair evaluation procedures.

It seems possible, at least theoretically, that a performance-based pay system for teachers could be designed which anticipated many of the problems that have undermined previous efforts. The key seems to be that the design should address several needs at once and, in particular, it should tie the extrinsic reward of pay to evidence that teachers will perceive as proof that they are being successful in fostering student learning (Hawley 1985a, makes this argument for schools; the theoretical point is developed by Larwood, Levine, Shaw, & Hurwitz 1979 and McKeachie n.d.). In other words, it seems reasonable to hypothesize that the motivational value of performance-based pay for those in the current teaching force and others like them is likely to derive less from the increased earnings than from the characteristics of the system and the way it contributes to other sources of teacher commitment.

At least implicit in the above discussion is the idea that the effect of any given incentive is contingent both with respect to the individuals involved and the organization's goals, context, and structure. More abstractly, the introduction of new technologies into an organization involved processes of change need to be understood and managed (Deal & Nutt 1980). A particular incentive is an organizatinal technology, the consequences of which are difficult to predict because they become part of a constellation of incentives, both formal and informal, which are not only shaped by needs not always clearly understood but may reshape the needs of individuals and the culture of the organization. Obviously, research on various incentives that presumably affect the effectiveness of teachers, as well as their qualities, should be a major activity of the CTQ&E. Particular interest should be paid to the evaluation strategies that are part of many of the new incentive plans because evaluation is both controversial and technically complicated.

Teacher Evaluation

Interest in the area of teacher evaluation has grown steadily over the past decade, but recently attracted more attention when the National Commission on Excellence in Education (NCEE) published A Nation at Risk. The report called on teachers to demonstrate aptitude and competency in teaching, while recommending that school systems raise teacher salaries on the basis of their performance. The imperative specifically stated: "Salary, promotion, tenure, and retention decisions should be tied to an effective evaluation system that includes peer review so that superior teachers can be rewarded, average ones encouraged, and poor ones either improved or terminated" (NCEE 1983).

Since the publication of the NCEE report, the importance of teacher evaluation has been echoed in a number of additional reports and arenas. A report of the Task Force on Education for Economic Growth of the Education Commission of the States (ECS) made a number of recommendations, including a "a new and higher regard for teachers and for the profession of teaching," the need for states to tighten procedures for teacher selection; the need for states to see to it that ineffective teachers are dismissed; and the requirement that local boards of education implement systems of measuring teacher effectiveness "as soon as possible" (ECS 1983).

The desire to improve teacher quality is evident in public opinion as well. For example, a Gallup poll found that the public believes that the most important reform necessary within public schools is the need to improve teacher quality. This need outweighs others such as lowering clas size, improving school management, updating curricula, or placing an emphasis on "the basics" (Gallup 1984b).

This resurgent interest in teacher quality and effectiveness has influenced state policy personnel to develop and adopt teacher competency tests (e.g., Lewis 1979) as well as teacher performance evaluation systems (e.g., Beckham 1981). Unfortunately, many measurement and evaluation systems have gone so quickly from the drawing board to implementation that their reliability, validity, and ultimate effectiveness remain in question (Ornstein & Levine 1981). In fact, in a recent review of the literature Darling-Hammond, Wise, and Pease (1983) find that the best, "state-of-the art," procedures for teacher evaluation may not even be adequate.

The important issues surrounding both prospects and problems with teacher evaluation can be divided into two domains: (1) implementation issues, and (2) conceptual issues. Both domains, of course, are inextricable. However, each raises distinct research questions. These will be elaborated in the following two sections.

Implementation issues. Issues that surround the study of the implementation of teacher evaluation systms deal with the actions of carrying out such systems. Such actions span the range of different units of analysis. For example, at the systems level, state policy as well as district- and school-level policies all play an important part in implementation. At the individual level, the actions of superintendents, principals, teachers, parents, and students play an equally important role.

Implementation issues include the significance of policies, the influence of different organizational variables, and issues surrounding the implicit and explicit purposes of evaluation. They span the entire implementation process, from program conception to the ultimate summative and formative decisions. They are related to conceptual issues of teacher evaluation in that the theoretical bases of an evaluation program can influence how the program is carried out (see Hatry & Greiner 1985).

Implementation process model. A framework for understanding the key issues involving a teacher evaluation system implementation is presented in below. Any program implementation begins with a conception of its initiation. This conception may be the force of a lobbying group upon state legislators,

or the cry of parents for accountability in their children's education. The idea to formulate and implement must begin somewhere.

Once it is determined that a plan will be carried out, its development ensues. For some state or local educational agencies, this would mean the actual development of an evaluation system from scratch. The more likely alternative, however, would be the adaptation of an existing teacher evaluation system (e.g., Manatt, Palmer, & Hidlebaugh 1976; Redfern 1980). In either case, once the plan is adopted, the system would be implemented. This would include all pre-implementation activities (e.g., notification of teachers, securing financial resources) as well as the actual implementation itself (managing the evaluation system).

The outcome of implementation would be varying degrees of summative and formative evaluation. Summative information would be used to judge both teacher and school accountability, whereas formative information would be used to provide feedback to the teachers, the school system, and the evaluation system for the purposes of modification, refinement, and readaptation. The flexibility of an implementation system lies with what we label contextual sensitivity. This addresses the question: "How sensitive is the techer evaluation system to contextual and organizational variables to allow for change?"

Policy considerations. Although recommendations frequently flow from federal imperatives and reports and are often fueled by public opinion, actual conception of most current teacher evaluation systems have begun primarily at the state level. As mentioned earlier, teacher evaluations programs have been initiated primarily from state policy mandates (Wise, Darling-Hammond, McLaughlin, & Bernstein 1984).

Developing policy mandates have seen the issue of evaluation become increasingly important in establishing labor contracts for teachers. Frequently, contracts explicitly specify methods of evaluation, criteria, communication processes to relate results, remediation opportunities in the event of negative outcomes, and due process procedures (Strike & Bull 1981).

Related to due process concerns is the growing literature on the legal issues surrounding the use of evaluation results for dismissal (Beckham 1981; Peterson & Kauchak 1982; Strike & Bull 1981). Courts have been generally strict on requiring systems to be explicit in defining minimally acceptable teaching standards in advance, informing personnel of such standards, and presenting detailed documentation of a teacher's deviation from such standards (Beckham 1981).

The development of contractual and legal specifications as a result of teacher evaluation mandates has placed teachers on the defensive. Not only do such developments increase friction between systems and teachers, but they also place heavy emphasis on the judgment of teachers and almost ignore potentials for the improvement of teachers. Munnelly (1979) reports that an emphasis on negative outcomes from evaluations by principals generates anxiety among techers, and disrupts the principal's role as staff developer.

Evaluation purposes. The initiation of policy changes affecting the certification, evaluation, and tenure of teachers has been concerned primarily

with the accountability of teacher quality and performance (Knapp 1982). Such an emphasis on summative evaluation has raised considerable concern. Some observers maintain that attempts at formative evaluation with a summative-oriented policy may be difficult to implement (Feldvebel 1980; Peterson & Kauchak 1982).

One way of understanding the different purposes of evaluation is to examine the investment different personnel have in teacher evaluation. In a review of the research and practice of teacher evaluation, Knapp (1982) presents the divergent views of three sets of stakeholders in the teacher evaluation process:

- Teachers have an investment in keeping their jobs, their self-respect, and sense of self-efficacy. They prefer a teacher evaluation system that understands the nature and complexity of their work, emphasizes self-improvement as opposed to negative evaluation, and protects their rights as employees.

- School administrators have a commitment to teachers to see that their needs are met and their morale maintained, but also have an obligation to parents for the accountability of teachers and the teaching of their students. They prefer an evaluation system that can accomplish these demands objectively, efficiently, and practically.

- Public administrtors have a duty to parents, the general public (and more broadly, society) to ensure successful student outcomes. They prefer an evaluation system that relates teacher performance to teacher effectiveness, and ultimately to student learning.

These perspectives illustrate the tention that exists between the different purposes or goals of various stakeholders. This tention has important implications for the development and implementtion of any teacher evaluation system.

As noted by Elmore (1979), even <u>after</u> a policy is adopted, changes in specific terms of the policy ensue. Renegotiations can occur at both formal and informal levels; such changes comprise the adaptation component of the implementation process.

<u>Organizational variables</u>. Recent reviews of the teacher evaluation literature have consistently pointed to the need for consideration of contextual or organizational variables in the implementation process (Darling-Hammond, Wise, & Pease 1983; Knapp 1982). Differences in organizational context will often influence the purposes and criteria for evaluation, as well as the theoretical orientations to which a particular program may subscribe.

For those evaluation systems that emphasize summative efforts and the need for accountability, the ideal evaluation system would be uniformly applied, administered according to standard rules, and based on context-free generalizations. Its purpose is purely judgmental, and it has the goal for use across disparate settings. Consequently, by its very nature, it needs to

view organizational and contextual factors as error variance or measurement "noise."

However, such systems fail to acknowledge the importance of organizational variables to effect corrective and constructive change in teachers (formative component). Darling-Hammond, Wise, and Pease (1983) articulate this point well in that ". . . the context-free generalization necessary for implementing a uniform evaluation system may counteract the context-specific processes needed to effect change in individual or organizational behaviors." They go on to argue:

> Whether a particular evaluation approach meets its proximate and ultimate goals will depend on the specific organizational context in which it is used, as well as the implementation processes that take place at each level of the operating system--that is, how the procedures are carried out within the classroom, school district, and where relevant, the state . . . . Our approach seeks to place existing teacher evaluation procedures within a conceptual framework that explicitly links the various types of procedures to the models of learning and school organization which they reflect and to the organizational contexts in which they can best be used. (p. 290)

We believe research on teacher evaluation should adopt a similar perspective. Understanding the role of states, districts, and schools in the development, implementation, and adaptation of teacher evaluation systems will enhance study of teacher systems. What combinations of policy initiatives and evaluation purposes can best function in what type of organizational context to ensure a fair and effective system? How do tensions between evaluation goals and teacher perspectives become resolved? What are the effects of such tensions upon the effectiveness of the evaluation system? How important are organizational variables in mediating the summative and formative effects of evaluation? These questions, among others, are central to understanding the implemental issues surrounding teacher evaluation.

Conceptual issues. The specific conceptual issues of concern here relate to understanding what constitutes teacher quality and effectiveness. Any evaluation system that has been or potentially will be developed needs to wrestle directly with this question. Relevant issues include:

- What makes a "good" teacher?
- What is the "appropriate" role for a teacher in his or her work?
- How do teachers view their work?
- How does one relate teacher practice to teaching outcomes?
- What are relevant teaching outcomes?

All of these questions have a direct bearing on teacher evaluation because they point to understanding the criteria upon which to conduct such evaluations.

The role of the teacher. Exactly what is a teacher supposed to do in a classroom? The answer to this question can be found, in part, if we examine different conceptualizations of teaching work. Mitchell and Kerchner (1983) describe four such conceptualizations: labor, craft, profession and art (see also Gage 1985). Understanding the assumptions underlying each of these roles can provide information about how evaluation systems are created. For example, a system that sees teacher work as labor would certainly develop different criteria for evaluation than one that perceives the teacher's role as artist. Darling-Hammond, Wise and Pease (1983) provide descriptions of each of these four teacher roles and their implications for evaluation:

- Laborer. When teaching activity is perceived as labor, it is assumed that activities and curricula are pre-planned by superiors, and the teacher is responsible for merely their exposition. Evaluation entails that teachers follow their given, prescribed plan. Effectiveness is assumed to be directly related to the teacher's ability to follow a given plan.

- Craftsperson. For teaching conceptualized as a craft, the teacher is expected to have knowledge of a range of specialized techniques, and know when and how to use them (e.g., drill and practice, lecturing). Evaluation requires the teacher to demonstrate knowledge of these standardized techniques. Effectiveness is assumed to be directly related to the ability to carry out the techniques appropriately.

- Professional. If teaching is seen as a profession, a teacher is expected not only to possess the aforementioned techniques, but also be able to diagnose classroom/student difficulties, evaluate potential solutions, and appropriately intervene. The teacher has total responsibility over his or her teaching. Evaluation standards are developed by peers, and evaluation assesses the degree to which a teacher demonstrates competence in problem-solving. Effectiveness is assumed to be related to the competence of the teacher as a professional.

- Artist. Under a conceptualization of teaching as an art, the role of the teacher can be novel, innovative, or even unconventional. The design and implementation of evaluation techniques is personalized, rather than standardized, and calls for improvisational procedures. Evaluation would involve "the study of holistic qualities rather than analytically derived quantities" (Gage 1978). Effectiveness is assumed to be related to success in instilling higher-order, analytic skills within students.

By understanding the role or combination of roles an evaluation system adopts, the nature of evaluation can be derived. Unfortunately, many evaluation systems fail to explicate which work role (or combination) they assume the teacher represents.

Difficulties in the measurement of teacher performance. A central problem with teacher evaluation measurement can be traced to difficulties in the explication of domains of assessment, specific competencies, and criteria for performance. This is a fundamental issue: how does one define teacher effectiveness and how does one measure various indicators and levels of that

effectiveness? As we stated above, teacher effectiveness ultimately rests on the impact of teachers and teaching on student learning. Teacher competence (mastery of a set of skills and knowledge and teacher performance--the way competence is used) contributes to but is not the same as teacher effectiveness. However precise one's definitions of these aspects of teacher assessment might be, what teachers do to account for student learning is extremely difficult to measure, particularly in an evaluative context (see Millman 1981; Darling-Hammond, Wise & Pease 1983). Many current evaluation systems have dealt with this issue by relying on research on teaching, particularly research from the process-product tradition (Gage 1978, 1985; Dunkin & Biddle 1974), to identify teacher behaviors that have been found to correlate with gains in various student outcome measures (e.g., achievement, time-on-task).

The limits of the product-process model--at least in its simplest form--as a basis for making summative evaluation decisions have been noted by many scholars (e.g., Darling-Hammond, Wise, & Pease 1983; Knapp 1982; Fenstermacher 1978; Doyle 1978). There is strong argument that uncritical, noncontextual use of these findings in the design of evaluation criteria is inappropriate, and may be counterproductive to the purposes of evaluation. Many policy makers and practitioners have, however, been diligent in mining the research for discrete teaching behaviors that will allow evaluators to rank teachers in a reliable way on an ordinal scale. We cannot know what the consequence of extensive specification of teaching behaviors might be but these developments provide an important opportunity for research.

Not all state officials are comfortable about using detailed process models as the basis for teacher evaluation. Connecticut, for example, has begun efforts to find alternatives to what they call the Southern strategy, emphasis on standardized performance criteria. Nonetheless, it seems to us that looking to research on teaching as a basis for teacher performance evaluation systems is an important development. While research on teaching has advanced our understanding about classroom processes, application of findings to teacher evaluation raises important issues. Different traditions and perspectives of research on teaching identify important facets of teaching processes, but no one tradition seems sufficient to capture the totality of the dynamic interactive processes that take place in the classroom (see Evertson & Smylie in press, Gage 1985). Reliance on one tradition in the development of teacher evaluation systems may help identify several important aspects of teacher performance, but ignore others that may make just as much difference in the impact of teachers in student outcomes. As Darling-Hammond, Wise, and Pease (1983) conclude after their review of a number of different types of evaluation systems:

> The generally low levels of reliability, generalizability, and validity attributed to teacher evaluation methods suggest that unidimensional approaches for assessing competence, performance, or effectiveness are unlikely to capture enough information about teaching attributes to completely satisfy any of the purposes for teacher evaluation. (p. 308)

They point to the need for an evaluation system to consider a broad range of behavior and processes in the selection of criteria and examine those criteria within the entire range of organizational context of its operation.

Directions for Research

Many of the issues we have identified may be engaged by focusing attention on policy innovations aimed at tying teacher performance to pay in the context of a differentiated career structure. These "career ladder plans" may vary significantly in several ways, particularly with respect to the degree of local autonomy and some form of evaluation. Comprehensive teacher evaluation can occur without some form of performance-based pay (though it seldom has), but performance-based pay does not occur without evaluation.

Career ladders and state-mandated evaluation may be the most profound of the recent school reforms that have found a wide audience. They are likely to affect the life of schools in profound ways. They seek to establish norms by imposing them so that they significantly alter the balance of power between states and localities. They often prescribe new roles for teachers and administrators and this may result in changing the distribution of power within schools in some cases. Of course, these plans are likely to influence the degree to which common values are shared and the nature of peer interactions. By defining new and higher paid roles for techers, career ladder plans may force a rethinking of the ways we organize instruction because they will inevitably drive up the costs of education unless adjustments in class size, staffing patterns or instructional methods are adapted.

Career ladder plans also raise to the fore issues of responsibility for staff development and how evaluated teachers use critical information with and without (a) opportunities to improve their competence, and (b) peer suppport. And, as we have suggested, career incentive plans, by insisting on verfiable evaluation that discrimates among teachers, may force people who are interested in evaluation to come up with plans that will address the technical political and interpersonal problems that have often characterized evaluation systems. Then, too, there is the issue of whether career ladder plans will do the primary job their advocates expect them to do--facilitate the recruitment and retention of teachers who contribute signficiantly to student learning.

Of importance to this line of inquiry is that if we are to understand the affects of policy we need to know how it was implemented. If a policy doesn't work it may simply be that it was never well implemented. More accurately, it may be that some policy other than the one on the books was implemented. This is not an uncommon circumstance in social policy whether the issue is economic development (Pressman & Wildavsky 1973), health and welfare (Barbach 1977), or special education (Hargrove et al. 1983). Conversely, if a policy works and we do not know the actual processes by which it was implemented, we cannot explain why that policy was apparently effective.

To study a policy, at least one with any complexity, without studying the process of implementation is to deny the policy maker critical information without which further action would be problematic and unpredictable. As we noted before, policymakers and practitioners clearly understand the importance of knowing about the processes needed to bring about outcomes and they tend to devalue information that does not describe what it takes, politically,

economically, and personnel-wise, to put in place a promising program (Cohen 1985).

Conclusion: Practice, Theory and the Usefulness of the Center

NIE asks throughout the GAA, as does The Secretary of Education in "Supplementary Information," for assurances that the plans of the Center applicants attend to the usefulness of their work. Let us conclude this report with some comments on this theme as we layout the conceptual and theoretical assumptions which underlie our understanding of the mission of the Center and the strategies it should pursue to accomplish that vision.

We have recommended a host of interrelated issues for inquiry, the results of which we believe can importantly shape policy, practice and theory.

We see theory and practice, knowledge and action, as interdependent and mutually developmental. We expect the use of the Center's work to improve practice, and we expect the weakness of that work as identified by policymakers and practitioners to help refine theory and improve method.

To understand the complicated issues related to the mission of the CTQ&E we need to get close to teachers, classrooms and schools. But to have a national impact we have to work through national and state organizations.

Social science is a precarious business. The problems we address are moving targets in the sense that each effective change in policy or practice reshapes the problem and makes answers that once seemed beyond doubt questionable. "Bringing truth to power" is a humbling experience.

As we see it, the role of the Center is not to prescribe answers that apply in all cases to all organizations or people. It is instead, to bring knowledge to bear on problems or issues that have not been well dealt with in the past so that policymakers and practitioners can make better choices within the values and resources they have. What we can expect to do is to reduce, not eliminate, uncertainty. We can identify options and provide evidence that will help policymakers and practitioners make the inevitable tradeoffs that must be made in making tough decisions with the understanding necessary to adaptively draw from knowledge, ideas, and prescriptions what will work in the various and varying contexts in which they must act.

Footnotes

[1]The American public, overwhelmingly, continues to favor merit pay (Gallup 1984b).

[2]A short time ago, NCES estimated that between 1985 and 1990 the supply of teachers was projected to be 103 percent of demand (Plisko 1983). In its 1984 estimates, NCES projects that supply will be only 75 percent of demand (Plisko 1984).

[3]State and local reform plans have generally failed to match changes in curriculum with strategies for ensuring adequate supply of qualified teachers (National Consortium of Education Excellence 1984).

[4]At a Decemeber 1984 meeting of the Cleveland Conference, Greg Anrig, President of the Educaitonal Testing Service, reported that black teachers and teacher candidates fail various written tests used for qualifying teachers at about twice the rate that whites fail such tests.

[5]Interestingly, teachers are more likely to cite monetary reasons as the actual or likely cause of exit for others than they are for themselves (NEA 1983).

[6]One might argue about whether the market has "worked" in the sense that we have the quality of teachers many want.

[7]The relevant literature is quite extensive. Hence, the citations here are illustrative.

[8]Hawley (1985a) identifies a dozen types of incentives from the literature on organizational behavior:

1. mechanisms for monitoring performance and providing feedback
2. pleasant working conditions
3. pay and fringe benefits
4. socialization to organizational ideologies
5. nature of supervision
6. control of status difference (promotion, demotion, and recognition)
7. job enlargement
8. professional or individual autonomy (independence to do work)
9. opportunities to shape organizational goals and procedures
10. opportunities for social interaction
11. peer group evaluation
12. possibilities for dismissal

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